

Wormwood Scrubs Park, East Acton: a preliminary invertebrate assessment during 2018

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Contents

SUMMARY	2
INTRODUCTION	3
METHODS	3
Site visits.....	3
Site compartments.....	3
Location and collection of specimens	4
Taxonomic coverage	4
SURVEY RESULTS	4
General.....	4
Noteworthy species	5
<i>Nationally rare (red data book) species</i>	5
<i>Nationally scarce (notable) species</i>	6
Very local species.....	7
DISCUSSION	10
CONCLUSION	11
REFERENCES.....	11

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SUMMARY

- A preliminary invertebrate survey of former playing fields in Wormwood Scrubs Park, in West London, was carried out in 2018.
- The primary purpose of the survey was to assess the invertebrate biodiversity of the site — now grown into rough grassland.
- The survey area, approximately 20 hectares, comprised rough grassland, scrub, hedgerows, marginal woodland and some remaining utility grass.
- The site was visited on 4 occasions — 8 May, 8 June, 16 July, 1 September 2018.
- 201 invertebrate species were recorded — a relatively good list for an area of urban greenspace.
- 4 nationally rare (red data book) species were found:
 - Amara strenua*, a ground beetle normally associated with coastal grasslands
 - Cistogaster globosa*, a parasitoid fly that attacks ground-dwelling shieldbugs
 - Dorycera graminum*, a picture-winged fly associated with flower-rich estuarine meadows
 - Gymnosoma rotundatum*, a parasitoid fly that attacks shieldbugs
- 9 nationally scarce (notable) species included:
 - Asiraca clavicornis*, a ground-dwelling plant-hopper
 - Dasytes plumbeus*, a soldier beetle associated with herb-rich meadows
 - Hippodamia variegata*, the Adonis ladybird, a warm-loving species
 - Hylaeus cornutus*, a southern and eastern warmth-loving white-faced bee
 - Larinus planus*, a scarce weevil that feeds on thistles
 - Meromyza westermanni*, a picture-winged fly that breeds in ragwort flowers
 - Phytoecia cylindrica*, a longhorn beetle of southern England
 - Reptalus panzeri*, a ground-dwelling plant-hopper
 - Rhinocyllus conicus*, a scarce weevil that feeds on thistles
- 17 'very local' species were also recorded.
- These are mainly insects associated with rough, flower-rich, grasslands.
- This habitat is often vulnerable to human interference through inappropriate cutting regimes, or abandonment to scrub encroachment.
- Rewilding of Wormwood Scrubs has produced a good list of unusual and scarce insects associated with rough grassland.

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INTRODUCTION

Wormwood Scrubs Park, the largest open space in the London Borough of Hammersmith and Fulham, comprises about 67 hectares. Much of this is mown utility playing fields, but about 20 hectares is now rough grassland. This invertebrate survey, of that rough grassland area was commissioned by London Wildlife Trust.

The survey area comprises about 20 hectares; it is roughly rhomboidal in shape, bounded to the north by railway line and embankment, to the east by playing fields and a small woodland, to the west by Old Oak Common Lane and to the south by a line of hedgerow.

The area is approximately centred on grid reference TQ218817, and is entirely within vice-county 21, 'Middlesex'.

METHODS

Site visits

The site was visited on 4 occasions in 2018: 8 May, 8 June, 16 July and 1 September. The weather was warm and dry on all occasions.

Site compartments

The site, being a solid block of relatively uniform rough grassland, was not divided into compartments. It is shown in the accompanying aerial photograph.



Location and collection of specimens

A walk-over survey was carried out. Invertebrates were located and collected by general methods using sweep net, beating tray and a stout trowel. Flowers, leaf surfaces, rocks, bare ground, logs and tree trunks were examined by visual searching. Others were found by finger-tip grubbing in loose soil and plant roots, logs, stumps and animal dung. Voucher specimens of all but the most common and characteristic species were collected for examination under the microscope.

Taxonomic coverage

The survey concentrated on the following major groups: Coleoptera (beetles), Diptera (flies), Hemiptera (bugs, froghoppers etc), Hymenoptera (bees, wasps and ants) and Lepidoptera (butterflies and moths). Some examples of other groups were noted if seen.

These are hugely numerous and diverse orders of insects, and identification is not always possible, especially in many of the microscopically small species. Consequently there is much subjective selection of which families or genera are worth taking as sample specimens, for later study. This is often influenced by a knowledge of the groups for which useable identification keys are available, and for which the individual entomologist has a particular penchant. Nevertheless, a wide coverage of insect orders allows some assessment of just how important any given site may be for its invertebrate biodiversity.

SURVEY RESULTS

General

A total of 201 invertebrate species was found during the survey, and these are listed, together with various comments on statuses, habits and distributions, at the end of this report. They represent:

	Species
Coleoptera (beetles)	72
Dermaptera (earwigs)	1
Diptera (flies)	51
Hemiptera (bugs)	32
Hymenoptera (bees, wasps etc)	18
Lepidoptera (butterflies & moths)	12
Odontata (dragonflies)	1
Orthoptera (grasshoppers etc)	6
Aranaea (spiders)	5
Opiliones (harvestmen)	2
Mollusca (slugs and snails)	1

Total 201

Two hundred and one species is a moderately good list and it compares roughly with similar survey sites elsewhere. It is commensurate with the survey effort and the range of sites and habitat types visited.

Noteworthy species

The following species are picked out as being especially noteworthy. Most are uncommon nationally. Criteria for allocation of accepted 'nationally rare' (red data book) and 'nationally scarce' (notable) statuses are varied and complex (originally published in Shirt, 1987; Hyman & Parsons, 1992 etc). Statuses continue to be assessed and reassessed over time, and a JNCC database is available giving a summary overview. Statuses change over time. Every time a rare insect is found there are more records and on a scoring system based on grid squares in which an insect is found, it becomes less rare. These statuses are useful to gauge relative rarity, but despite the apparent objectivity of counting numerical records, there is still a subjective element to what is sometimes a very vague notion of exactly how rare an organism may be. Those that are relevant to this report are listed in brief here.

- **Endangered** (RDB-1). The rarest taxa. Taxa in danger of extinction in Great Britain; species with very few recorded localities or living in especially vulnerable habitats.
- **Vulnerable** (RDB-2). Very rare species. Taxa likely to move into the RDB1 category; species declining in their range.
- **Rare** (RDB-3). Rare species. Taxa with small populations and which are at risk; species estimated to occur in 15 or fewer of the 10-km squares in the national Ordnance Survey grid since 1970.
- **Insufficiently known** (RDB-K). Species thought to be very rare in Britain, recorded from less than 15 of the 10-km squares of the national Ordnance Survey grid since 1970, and which warrant RDB classification of some sort, but for which there is a recognized lack of accurate information.
- **Nationally scarce** (notable A). Very local species, thought to occur in 16 to 30 of the 10-km squares of the national Ordnance Survey grid since 1970.
- **Nationally scarce** (notable B). Very local species, thought to occur in 31 to 100 of the 10-km squares of the national Ordnance Survey grid since 1970.
- **Nationally scarce** status is sometimes not subdivided into categories A and B, (notable, occurring in 16 to 100 10-km squares).
- **Very local** status is a much more subjective, but nevertheless useful, measure of scarcity and is based on personal experience, published and unpublished records. It is applied to species that are very limited in distribution or confined to very limited specialist habitats.

The following is a list of some of the more interesting and noteworthy species taken in the area.

Nationally rare (red data book) species

Amara strenua Zimmermann, a medium-sized brassy black ground beetle, family Carabidae. Status: nationally rare (red data book category 3, Hyman & Parsons, 1992; Telfer, 2016). Little is known about this rare beetle. Most species in this genus are seed-feeders, but there are no or few poorly-known close plant-associations. It seems to favour mostly coastal grassland in Somerset, south-east England and Suffolk (Luff, 1998). It is extremely rare, and this appears to be the most inland record since one was found in Wicken Fen, Cambridgeshire in 1922. A single specimen was found running about on the edge of a path, at the north-eastern corner of the site, 8.vi.2018.

- Cistogaster globosa* Fab., a small black and yellow parasitoid fly, family Tachinidae. Status: endangered (red data book category 1, Falk, 1991b), but this needs to be revised. This fly is an internal parasitoid of the bishop's mitre shieldbug, *Aelia acuminata*. The shieldbug was formerly considered a species more or less confined to chalk downland, but it has become more common in the last two decades and is now found in dry grassy places, waste ground and brownfield sites. Likewise, the fly was also very scarce. Until recently this fly was only known from three localities: Portsdown in Hampshire, Cothill in Berkshire and White Down in Surrey. However, it has recently started to be recorded almost commonly in several of the brownfield sites in the London and Thames Estuary area (Jones, 2003, 2007) and beyond. However, it remains scarce and restricted in its range across much of southern England. One specimen was found by general sweeping in the centre of the site, 8.vi.2018.
- Dorycera graminum* (Fabricius), a small mottled fly, family Ulidiidae. Status: nationally rare (red data book category 3, Shirt, 1987; Falk, 1991b). *Dorycera* is thought to be associated with herb-rich unimproved meadows, often in association with umbellifers and broad-leaved trees. The life history is unknown, but the larvae probably develop in decaying vegetable matter, possibly in the dead or dying roots of hogweed, *Heracleum sphondylium* or a near relative. It was once regarded as a fairly frequent insect, but appears to have declined dramatically in recent years. Threats are thought to come from loss of unimproved flowery meadows through drainage or lack of grazing leading to scrub invasion. Although there are old records from Hampshire and Worcestershire, most of the recent records are from the Thames Estuary where it regularly occurs on brownfield sites (Ismay, 2000; Jones, 2003; Jones, 2007). Several specimens were found sweeping along the hedgerow southern edge of the site, 8.vi.2018.
- Gymnosoma rotundatum* (Linnaeus), a medium-sized black and pink parasitoid fly, family Tachinidae. Status: nationally rare (red data book category 3, Falk, 1991) but this status may need revision. This very scarce fly is an internal parasitoid of shieldbugs, the common green shieldbug *Palomena prasina* usually being quoted as the main host. Despite the widespread commonness of the bug, *G. rotundatum* is very limited in its UK distribution, and is mostly recorded from South London, Surrey, West Sussex and Hampshire, following the band of lowland sandy heaths. It does, however, occur sporadically in East Sussex and Kent. Two specimens were seen flitting about on bramble leaves near the northern edge of the site, 8.vi.2018.

Nationally scarce (notable) species

- Asiraca clavicornis* (F.), a small brown ground-hopper, family Delphacidae. Status: nationally scarce (notable B, Kirby, 1992). Although historically recorded from many areas in southern Britain, this insect appears to have dramatically contracted its range until it is more or less confined to the Thames Estuary and the London area. It is associated with dry grassy places with areas of bare ground and has been found on a number of typical urban brownfield sites during the last 15 years (Jones & Hodge, 1999; Jones, 2008). Several specimens were found by sweeping 8.v.2018, 1.ix.2018.
- Dasytes plumbeus* (Muller), a small dark grey flower beetle, family Melyridae. Status: nationally scarce (notable B, Hyman & Parsons, 1992; Alexander, 2014). A scarce species of rough grassy places, including old chalk pits, railway cuttings, marshland and meadows. Two specimens swept, 8.vi.2018.
- Hippodamia* (formerly *Adonia*) *variegata* Goeze, the Adonis ladybird, family Coccinellidae. Status: nationally scarce (notable B, Hyman & Parsons, 1992), but status may need revision. Until about 20 years ago, this species was always regarded as having a coastal distribution, occurring in warm sheltered locations

such as chalk downs, dunes, undercliffs and other disturbed areas (Majerus *et al.*, 1997). However, it is now known to be fairly widespread in England, especially in the London area and Thames Estuary, where it is associated with sparsely vegetated post-industrial brownfield sites (Roy *et al.*, 2011). Numerous specimens were found by general sweeping, throughout the site, 16.vii.2018, 1.ix.2018.

Hylaeus cornutus Curtis, a small black white-faced bee, family Colletidae. Status: nationally scarce (notable A, Falk, 1991a). This uncommon bee occurs in a variety of habitats, including woodland and fenland, but is mainly found in dry chalky areas, particularly in the Thames Estuary and Thames Valley (Edwards & Telfer, 2001) and Surrey (Baldock, 2008). It visits a variety of flowers after nectar and pollen and nests in the tough hollow stems of various dead plants such as dock and bramble. Three specimens were found visiting flowers, 16.vii.2018.

Larinus planus (Fabricius), a medium-sized brown weevil, family Curculionidae. Status: nationally scarce (notable B, Hyman & Parsons, 1992). This very scarce weevil is found in scattered localities in southern and western coastal counties from England and Wales and feeds on thistles. Previously considered very uncommon, it appears to be spreading and increasing its range, especially in Wales and western England. Numerous specimens were swept from thistles, throughout the site, 8.v.2018, 8.vi.2018, 1.ix.2018.

Merzomyia (formerly *Ictericia*) *westermanni* (Meigen), a medium-sized brown and orange picture-winged fly, family Tephritidae. Status: nationally scarce (notable, Falk, 1991b). This very local fly is known from an area south-east of a line from The Wash, to Gloucester to Weymouth. It breeds in the heads of ragwort, *Senecio* species (Clemons, 1997, 2004, 2015). several specimens were found by sweeping ragwort along the eastern edge of the site, 1.ix.2018.

Phytoecia cylindrica (Linnaeus), a medium-sized grey longhorn beetle, family Cerambycidae. Status: nationally scarce (notable B, Hyman & Parsons, 1992). This uncommon beetle develops in the stems of umbellifer plants. It is widely recorded from scattered localities in central and southern England (Twinn & Harding, 1999), mostly south of the Severn/Wash line. A single specimen was found by sweeping in the middle of the site, 8.v.2018.

Reptalus (formerly *Oliarus*) *panzeri* Low, a small brown plant hopper, family Cixiidae. Status: nationally scarce (notable, Kirby, 1992). This scarce bug has a very restricted south-eastern distribution and is thought to have declined dramatically in the last 50 years (Kirby, 1992). It has recently only been found in the extreme south-east, London, Thames Estuary, Sussex and Kent (Jones & Hodge, 1999). It seems to be associated with areas of rough ground, particularly where there are areas of bare soil, or where there is regular cracking in the ground during periods of drought. Several specimens were found by sweeping at the western end of the site, 16.vii.2018.

Rhinocyllus conicus (Froh.), a small mottled brown weevil, family Curculionidae). Status: nationally scarce (notable A, Hyman & Parsons, 1992). Historically, this very scarce beetle was only known from a few scattered localities in south and south-west England, usually on disturbed ground. It was usually regarded as a coastal species, but appears to have been spreading in recent years, occurring at inland sites. Several specimens were swept, through the site, 8.v.2018, 8.vi.2018 and 16.vii.2018.

Very local species

Bruchidius imbricornis (Panzer) a tiny mottled bean weevil, family Chrysomelidae. Status: very local. A recent colonist to Britain, this small but distinctive beetle was first found, in Essex, in 2012. It's food plant is nominally goat's rue, *Galega*

officinalis, a widespread alien vetch that has become widely established in brownfield sites in England. Several specimens were found by sweeping, 8.v.2018.

Bruchus atomarius (Linnaeus), a small seed beetle, family Chrysomelidae. Status: very local. This species was originally accorded nationally scarce (notable B) status by Hyman & Parsons (1992), but this was not confirmed by Hubble (2014). Although widespread in Wales and southern England, this is a very local insect. It is associated with rough flower-rich grassland, where it breeds in the seed pods of various vetches, *Vicia* and *Lathyrus* species (Cox, 2007). Several specimens were found by general sweeping, 8.vi.2018.

Chorisops nagatomii Rozk., a small yellow and metallic green soldier fly (Diptera: Stratiomyidae). Status: very local. Although formerly accorded nationally scarce (notable) status by Falk (1991b) this was not confirmed by Drake (2017). Although widespread in southern England, this species is decidedly scarce and usually associated with broadleaved woodland, parkland, rivers and fens. Its life history is unknown, but it is likely to feed in moist leaf litter or soil (Drake, 1991). Several specimens were seen at the western end of the site, 1.ix.2018.

Corizus hyoscyami (Linnaeus), a large black and red ground bug, family Rhopalidae. Status: very local. This rather local bug occurs on dry sandy soils, like dunes, cliffs and undercliffs, mainly in southern and western Britain. Until recently it was not known from any inland sites other than the Norfolk Breck, but over the last 10 years has occurred widely across central and southern England. It now occurs as far north as York and is quite widespread in the London area (Jones, 2008). Several specimens were found by general sweeping, 1.ix.2018.

Drosophila suzukii (Matsumura), a small pale fruit fly, family Drosophilidae. Status: very local. This distinctive fruit fly was first discovered in Britain in 2012, from East Malling in Kent, and is now spreading across the country. Its larvae, like those of other members in the genus breed in fruit, but where others prefer rotten and fermenting fruit *D. suzukii* seems to attack sound strawberries and is a potential pest in gardens and agriculture. One specimen was found by sweeping along the northern edge of the site, 1.ix.2018.

Eupeodes bucculatus Collin (formerly *Metasyrphus latilunulatus*), a medium-sized hoverfly, family Syrphidae. Status: nationally scarce (notable, Falk, 1991a). A widely distributed, but very local species. Its habitat preferences are uncertain, and it has been recorded from scattered localities in woods and heaths throughout England and Wales (Ball et al., 2000; Ball & Morris, 2014). One specimen was found visiting flowers in the centre of the site, 8.v.2018.

Fieberiella florii (Stål), a medium-sided brown leaf-hopper, family Cicadellidae. Status: very local. This small leaf-hopper is a recent arrival in Britain, having first been found here about 15 years ago. It is still more or less restricted to the London area. It feeds on various trees and shrubs, including laurel, privet, cherry and apple. Numerous specimens were beaten from cherry trees along the southern edge of the site, 1.ix.2018.

Gonocerus acuteangulatus (Goeze), a medium-sized brown shieldbug, family Coreidae. Status: 'endangered' (red data book category 1, Shirt, 1987; Kirby, 1992), but now spreading and its status needs revision. This was once regarded as one of the rarest bugs in Britain, and since its discovery in the late 19th century it was long known only from a few box trees on the precipitous slopes of Box Hill, Surrey. However, during the 1990s it was found at first one, and then other Surrey localities and has continued to spread. It is now known throughout most of that county (Hawkins, 2003), then in Kent and Sussex and is now quite widespread south of the Severn/Wash line. The reason for its increase appears to be a change in its foodplant preference from the very

restricted box tree to hawthorn, apple, and honeysuckle. One specimen was swept from the eastern edge of the site, 16.vii.2018.

Harpalus ardosiacus Luts., a medium-sized blue-black ground beetle, family Carabidae. Status: very local. Although given nationally scarce (notable B) status by Hyman & Parsons (1992), this was later revised by Telfer (2016). This is mainly an uncommon species of southern England, south of the Severn/Wash line, and most localities are coastal or estuarine, with a large series of localities on the north Kent and South Essex coast of the Thames Estuary (Luff, 1998).

Hylaeus dilatatus (Kirby), a small black white-faced bee, family Colletidae. Status: very local. This is a bee of southern England where it seems to prefer chalk or limestone districts (Edwards & Roy, 2009). It visits a wide variety of flowers and nests in the dry hollow stems of bramble, dock, etc. Several specimens were found, 16.vii.2018, 1.ix.2018.

Longitarsus dorsalis (Fabricius), a very small black and yellow flea beetle (Coleoptera: Chrysomelidae). Status: very local. Originally given nationally scarce (notable B) status by Hyman & Parsons (1992) this was revised by Hubble (2014). Although widespread across much of south-east England, this is still a scarce species (Cox, 2007). It occurs on ragworts, usually on dry sandy or chalky soils or on coastal cliffs and landslips. Two specimens were found by sweeping at the extreme western end of the site, 8.v.2018.

Meconema meridionale Costa, the southern oak bush-cricket, family Meconematidae. Status: very local. This relatively large insect was first found in the UK in 1991, in Kent and Berkshire. It is obviously a recent colonist, probably an accidental tourist brought back by holidaymakers from France or the Mediterranean. It has since spread across much of southern England, but remains relatively localized at present. Several specimens were found by beating hedgerow bushes along the southern end of the site, 16.vii.2018, 1.ix.2018.

Rhyparochromus vulgaris Shilling, a medium-sized mottled ground bug, family Lygaeidae. Status: very local. This is a recent arrival in the UK, first appearing in the London area in 2010/2011, and now relatively common hereabouts. Records are from rough grasslands, gardens and open spaces. It is likely to spread widely over the next few years. One specimen was found under a piece of broken wooden plank, 1.ix.2018.

Rhyzobius chrysomeloides (Herbst), a minute reddish pink ladybird, family Coccinellidae. Status: very local, a new arrival in Britain. This tiny red beetle is extremely similar to a very common species, *R. litura* (Fabricius), and its occurrence in Britain was only recognized in 2000 when it was found in several Surrey localities (Hawkins, 2000). It is probable that this is a recent arrival in Britain and its spread has so far been monitored mostly in Surrey, Sussex, Hampshire, Kent, Middlesex, Oxfordshire and Berkshire (Roy et al., 2011) and more recently in the Manchester area. Several specimens were swept, 8.v.2018.

Stictopleurus punctatonevrosus (Goeze), a medium-sized brown leaf bug, family Rhopalidae. Status: extinct (Kirby, 1992), but now recolonized and spreading across Britain. At the time of the national review of British Hemiptera, this species was regarded as being extinct. It had been recorded from only two localities in Britain, the last in 1870. It appears to have successfully recolonized Britain since it was recorded in Essex in 1997. It has now become a species typical of the dry, well-drained and sparsely vegetated brownfield sites in and around urban London and the Thames Estuary (Jones, 2008), and is spreading widely across England. Several specimens were swept from wormwood, *Artemisia vulgaris*, 16.vii.2018, 1.ix.2018.

Xanthogramma citrofasciatum (De Geer), a large black and yellow hoverfly, family Syrphidae. Status: very local. Although widespread across much of England and Wales, this hoverfly is never common (Ball et al., 2000). Its larvae are ground-dwellers and are thought to be predatory on root aphids, often in the company of ants. It seems to prefer dry grassy places like chalk downs and sandy soils. One specimen was seen flying over herbage, 8.v.2018.

Zacladus geranii (Paykull), a small black weevil, Coleoptera: Curculionidae. Status: very local. A very local species that feeds on cranesbills in central England. Often associated with rough grass verges, unmanaged grasslands, and hillsides. This is an unusual southern record, apparently right on the edge of its geographic range in Britain. Two specimens were swept from cranesbills, at the western edge of the site, 8.vi.2018.

DISCUSSION

The rough grassy areas of Wormwood Scrubs Park appear to be former utility grass areas, playing fields, that have been allowed to grow unmown for a number of years — 15 years perhaps? During that time long grass and herbs have sprouted and intermittent shrubs have grown. It is unclear if any other habitat enhancements have been carried out.

The insects found, especially those marked out as being unusual, uncommon or other wise interesting, are those generally associated with rough grassland. This varied habitat is often the result of irregular piecemeal or former grazing, verges, field edges or, in London in particular, brownfield dereliction. Utility grassland, close or frequently mown, has extremely low insect biodiversity — finding so many unusual and interesting insects here was very pleasing, and perhaps shows the resilience of the habitat if it is allowed to ‘re-wild’. This does, of course, depend on how close are any reservoir or stepping-stone habitats exist, from which the invertebrates can colonize the newly forming grassland habitats.

One striking correlation is that several of the scarce species are well-established in the Thames Estuary, occurring on the alluvial plains of South Essex and North Kent, and often occurring in Brownfield sites into relatively central urban London. This group includes *Amara strenua*, *Dorycera graminum*, *Asiraca clavicornis*, and *Reptalus panzeri*. For all of these species the records from Wormwood scrubs are unusual in they are seldom if ever recorded West of London. Certainly the specimen of *Amara strenua* is highly unusual since all other modern UK records appear to be from coastal sites.

Another unusual find was the small black weevil *Zacladus geranii*. Although moderately widespread in Wales and parts of England, it is virtually unknown south of a line from Exeter to the Wash, making this one of the most south-easterly records in Britain.

Flowery grassland is a relatively transient habitat, often in danger of being engulfed in scrub, which later degenerates into secondary woodland. It is often rich in food-plant and floral diversity, and favours insect species which thrive in hot, dry, well-drained places. Parts of the site are already turning into impenetrable thicket. If the biodiversity of Wormwood Scrubs is to develop further, then some sympathetic piecemeal clearance and management might be required soon.

CONCLUSION

Many unusual and scarce insects were found in Wormwood Scrubs Park. These are likely to have appeared as a direct result of relaxation of mowing regimes to former utility grass playing fields. This is very encouraging and the future of the site should include measures to keep it open and flowery, a rough grassland, and prevent too much scrub encroachment.

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