

Item

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Mousehold Heath Conservators

Annual report 2012 to 2013



NORWICH
City Council

Mousehold Heath Conservators Annual report 2012 to 2013

Introduction

Mousehold Heath covers 184 acres including open areas of lowland heathland, mixed woodland and recreational areas. A works programme is prepared annually in line with the Mousehold Heath management plan.



This plan was recently revised by the conservators for the period 2013 to 2018 to identify and prioritise works that require implementation. Works carried out will be in line with changes on the heath since the plan was introduced and the changing operating environment, including budgetary constraints.

Finance to organise and carry out management works on the heath is provided from the conservators budget precept on Norwich City Council, which is set in January each year at the same time as the annual works programme is agreed.

Work programme activity Heathland and woodland management

One of the key objectives in the management plan, and identified as a priority, is to address the reduction of open heathland and acid grassland across Mousehold, which at the moment is less than 10%.



The objective is to increase this percentage cover through restoring degenerated areas, by the removal of scrub encroachment (primary succession), which is the main cause for concern.

This year, one hectare of heathland was restored within areas F4, K6, J6 (ref management plan) by the removal of leggy gorse and scrub along with humus stripping. This is a very important form of management, which incorporates the removal of a layer of nutrient enriched soil that has built up over a number of years, exposing a more acidic environment, ideal for pioneering heather and heathland plants to establish themselves. This improvement encourages a more diverse habitat for invertebrates, especially ground mining wasps and bees.

This form of management has resulted in an increase to eight hectares of open heathland habitat across the whole site.



Due to the aggressive nature of bracken and its encroachment into open heathland areas, bracken bruising techniques have been employed to control it from spreading, using volunteer groups supervised by Mousehold Heath wardens.

A specialist tractor-mounted cut and collect mower has been used to remove bracken, dead plant material and create fire breaks in open heathland and grassland areas.

Norwich City Council on behalf of the conservators has secured grant-aid of £30,600 from the Higher Level Stewardship scheme (HLS), to restore and conserve areas of heathland and acid grassland on the site. This grant will be paid over a ten-year period to support the implementation of management plan objectives 7.1 and 8.1.

Presently, large areas of heathland are in poor condition. The HLS 'restoration of lowland heath' option is aimed at restoration of habitats that are not currently in good/favourable condition. The HLS funding 'indicators of success' state that by year five of the agreement, cover of dwarf shrubs, of at least two species, should be between 30% and 90% in heathland areas.

The first two years of the agreement will see £8,538 allocated to capital works, to fund restoration in areas that have become degraded by scrub, bracken, gorse and secondary woodland.

With the exception of open heathland areas, most of the former extent of Mousehold Heath now consists of secondary woodland, with a uniformed

structure, providing limited wildlife value and containing dense, even-aged stands with little understory or ground flora.

To improve biodiversity within these areas it would be beneficial to open up woodland rides and glades, to encourage species that need more light, along with coppicing in selected areas to encourage a more diverse age structure, plan objectives 9.1, 9.2 and 9.3.



This year, contractors supervised by the Mousehold wardens carried out the felling of Gilman Road, along with the coppicing of the hawthorn glade adjacent to the new wildlife pond with volunteer groups, increasing its size by one third to meet this aim.

Due to the age and structure of the secondary woodland, to ensure public health and safety, the Mousehold wardens have undertaken chainsaw and tree safety courses. Tree surveys have been carried out and this has resulted in an increase of tree works resulting in more than 30 potentially dangerous trees and branches being made safe.

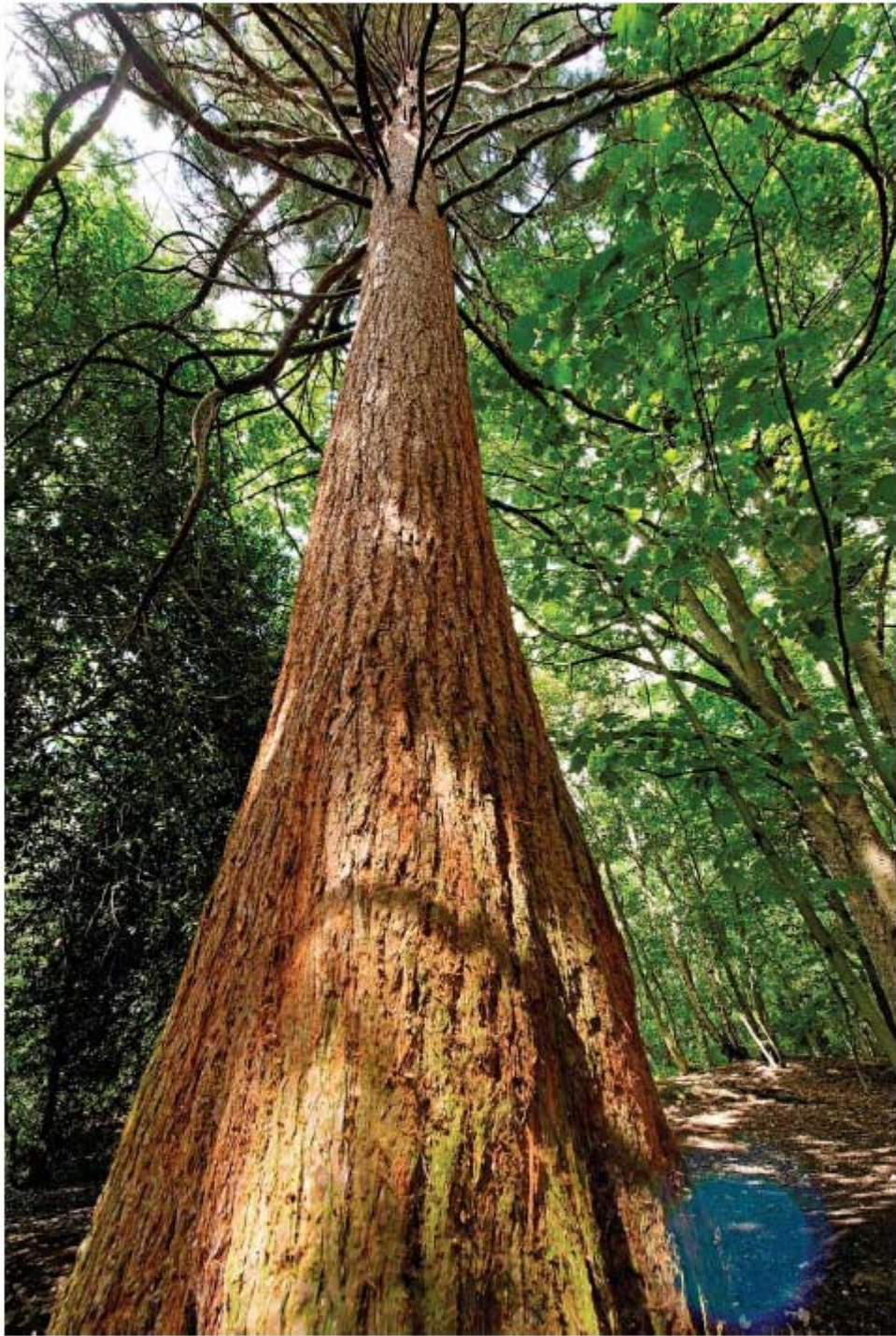
Where trees are too large to be dealt with by the Mousehold wardens, contractors will be brought in to carry out works. In this case (see photo below) a Beech tree along Beech Drive needed reducing due to disease. It is the conservators policy to encourage standing dead wood for invertebrates and birds, this is helped by cutting jagged edges called coronet cuts, reproducing a natural break and encouraging wood to decay.



To encourage more visitors to the heath, several ornamental trees, along with native trees, were planted (circa 1900), especially around the pavilion and Gurney Road area. This has resulted in a number of notable specimen trees including spruce, larch, pine, Tree of Heaven and a Turners Oak, situated within the public car park in front of the pavilion on Gurney Road. This plays host to a resident population of Purple Hairstreak butterflies that are dependant on oak trees for survival.



Just a few meters into the woodland adjacent to the Turners Oak, a giant redwood can also be seen. These trees are constantly monitored by the Mousehold Wardens in partnership with Norwich City Councils arboricultural officers to ensure their health, condition and protection.



To increase biodiversity and the enjoyment of the site, a new community wildlife pond was completed, to help aquatic flora and fauna establish and to provide a pond dipping resource for local school groups.

Phase one.



Phase two



Phase three.



Volunteering and involvement

In recent years the conservators have set out to increase the number and range of partners that it collaborates with, to help implement these works and widen the understanding and enjoyment of Mousehold. Over the past year, this has included:

- the Mousehold Heath Defenders
- scouts and beavers
- Duke of Edinburgh award students
- Easton College Step by Step group
- The Assist Trust
- Julian Support Trust
- local school groups including Open Academy, Skill Force Sprowston School and Mousehold Avenue Infant School
- voluntary groups including, the Conservation Volunteers, Norwich Community Green Gym and an Easton College work placement student.

Over 100 volunteer days of work were undertaken in practical conservation tasks and ecological surveys including bat, moth, butterfly, bird, wild flower and invertebrates. This resulted in 3,685 working hours!

Public access and enjoyment

To enhance visitor enjoyment and understanding of the heath, the Mousehold wardens organise an annual guided walks and talks programme, which during the year included a butterfly walk, geology and landscape walks, biodiversity

and landscape for the Norwich ladies walking group, three moth evenings, a fungal foray, HEART heritage and history walk, five community wildlife watch walks through the year in partnership with Norfolk County Council adult education services and a health walk to celebrate the start of the Olympic Games.

A ceremony of remembrance at the Airmen's Memorial at Gurney Road, a winter solstice gathering and a St Georges Day celebration were organised in partnership with the Mousehold Heath Defenders.

Norwich City Council events team also organised play days during the school summer holidays, along with band concerts and cross country runs.

In total over 800 members of the public attended these events over the period of April 2012 to April 2013.

Staffing arrangements

At the start of 2012, the Mousehold wardens moved under the responsibility of the north communities and neighbourhood manager.

These changes have brought about clearer roles and responsibilities. They allow the wardens, with their considerable specialist skills and knowledge, to prepare and implement the annual works programme once agreed by the conservators, together with monitoring budget expenditure, and changes brought about by the work to implement the management plan.

This has resulted in a more planned approach through work priorities being identified and costed and a more flexible approach to how these are implemented.

Projects and activities

Several new partnerships were formed during the year, with some securing external funding. These included:

- **Natural England:** Higher Level Stewardship funding for Heathland restoration £8,538 for the first two years.
- **The Norwich Society:** for the restoration and replacement of the Mottram Memorial £2,500 (plan objective 4.9 and 10.1 (v))



- **The University of East Anglia:** Big Norwich Bat project
- **Greater Norwich Development Partnership, including Open Academy School:** heathland creation and restoration including production and installation of an interpretation panel

Phase one, Creation of acidic soil conditions



Phase two, seeding with heather cuttings with TCV volunteers



- **Norfolk Biodiversity Partnership and Norfolk Geodiversity Partnership:** Excavations and Exposures, the installation of an Earth Heritage Trail, including way-marked posts the production of an EHT leaflet and a web page on the Norwich City Council Web site.
- **Norfolk County Council, historic environment officer:** the first stage for improved interpretation of St. Williams Chapel (schedule ancient monument) including, with the help of volunteers, the cutting back and clearance of vegetation to open up public access.
- Infrastructure renewals i.e. bollard replacements and furnishings (on-going)
- The installation of a new community wildlife pond – this will be planted with aquatic plants in the new financial year.

Looking forward

As new partnerships and funding have been formed for the implementation of the management plan, it is essential to keep within the funding criteria. Recognition of the national importance of the site's heathland and grassland habitats has been confirmed by a HLS agreement with Natural England. With this in mind, priority will be given to heathland and acid grassland restoration and expansion to achieve the desired objectives.

The first year's capital works funded restoration works will be implemented, along with other grassland and heathland management. Woodland management, scrub clearing and emergency vehicle access tree management along Gilman Road will continue.

The procurement of specialist contractors with experience in heathland/grassland restoration will continue, along with volunteer community groups and organisations supervised by the Mousehold wardens, who play a large part in making this possible.

Public walks and talks are promoted through an annual programme available online, in local press, what's on, NCC events leaflet and the Tourist Information Centre.

To ensure a good first impression and a safe environment for the visiting members of the community, on going monitoring of the site is carried out, including the reporting of anti-social behaviour, site repairs, contract failures, tree surveys and works and improvement of service recommendations, with emphasis on public health and safety.

Education

The wardens have organised environmental education activities for Open Academy students and Sprowston Beaver group, along with weekly conservation based activities with Forest School from Mousehold Avenue Infant School. These activities increased understanding and enjoyment of the site to over 100 students.



Ecological surveys and species monitoring

Butterflies:

An additional Butterfly Monitoring Scheme (BMS) transect survey was completed between April and October. 251 butterflies were recorded on this transect, mainly in the recently managed and restored areas of the anthills and heathland. See appendix 3.

There were 370 butterflies recorded on the transect undertaken on the Weston side of Gumey Road – a good number considering the poor weather conditions. Over 50 members of the community were involved in the surveys.

There were two new species of butterfly recorded bringing the site total to twenty five. The Small Heath (*Coenonympha pamphilus*) – UK Biodiversity Action Plan Priority (UKBAP) species and GB Red List, Near Threatened – were recorded on recently managed heathland areas and on the anthills acid grassland.

White-letter Hairstreaks (*Satyrion w-album*) – UKBAP Priority and GB Red list, Endangered – were recorded on Elm trees adjacent to Gurney Road. This record prompted a mini-twitch, with many observers attending at midday at the start of August, being rewarded with good views.



Meadow Brown (*Maniola jurtina*)

Moths:

Three public moth evenings, along with ad hoc surveys were completed, with 35 people attending. 70 moth species including 15 new species to the site, made up the 385 moths recorded in total. These ranged from the large and colourful Elephant Hawkmoth (*Sphinx ligustri*), which thrilled the participants on 23.06.13 and the Heath Rustic (*Xestia agathina*), a scarce and threatened moth that is closely associated with heather. See Appendix 5.

These surveys have resulted in the species list rising to 177.



Birds:

A Common Bird Census (CBC) survey was carried out by the Mousehold wardens with the help of volunteers. Thirty species of bird were recorded as having breeding territories based on the CBC methodology. This number was roughly the same as previous years. This survey is being extended onto the western side of Gurney Road this year. See appendix 4.

As well as native resident species, Mousehold also plays host to overwintering visitors like the Redwing (*Turdus iliacus*) below, spotted in a crab apple tree in a garden backing onto the heath. There were at least fifty in the flock and they took just a couple of hours to strip the fruit from the tree!

**Plants:**

The results of a monthly plant survey on St. James' Hill, carried out by members of the Mousehold Heath Defenders and a Mousehold warden are attached. See Appendix 1.

Bumblebees:

A monthly survey carried out by a member of the Mousehold Heath Defenders and a Mousehold warden on St. James Hill, has recorded a number of bee species, including Buff-tailed bumblebee (*Bombus terrestris*), White-tailed bumblebee (*Bombus lucorum*), Re-tailed bumblebee (*Bombus lapidarius*) and Common carder bee (*Bombus pascuorum*).



White-Tailed bumblebee (*Bombus lucorum*)

Appendix 1

List of plant species recorded on St. James Hill, Mousehold Heath, 2012.

Fat-hen (<i>Chenopodium album</i>)	Ribwort plantain (<i>Plantago lanceolata</i>)
Rosebay willowherb (<i>Chamenerion angustifolium</i>)	Greater plantain (<i>Plantago major</i>)
Broad-leaved willowherb (<i>Epilobium montanum</i>)	Field bindweed (<i>Convolvulus arvensis</i>)
American willowherb (<i>Epilobium ciliatum</i>)	Horse-radish (<i>Armoracia rusticana</i>)
Grounel (<i>Senecio vulgaris</i>)	Garlic mustard (<i>Alliaria petiolata</i>)
Heath grounel (<i>Senecio sylvaticus</i>)	Hedge mustard (<i>Sisymbrium officinale</i>)
Common ragwort (<i>Senecio jacobaea</i>)	Foxglove (<i>Digitalis purpurea</i>)
Tansy (<i>Chrysanthemum vulgare</i>)	Common mallow (<i>Malva sylvestris</i>)
Wormwood (<i>Artemisia absinthum</i>)	Black horehound (<i>Ballota nigra</i>)
Mugwort (<i>Artemisia vulgaris</i>)	Hedge woundwort (<i>Stachys sylvatica</i>)
Common poppy (<i>Papaver rhoeas</i>)	Wild strawberry (<i>Fragaria vesca</i>)
Scarlet pimpernel (<i>Anagallis arvensis</i>)	Blackberry (<i>Rubus fruticosus</i> agg)
Common field speedwell (<i>Veronica persica</i>)	Gorse (<i>Ulex europaeus</i>)
White campion (<i>Silene alba</i>)	Hare's-foot clover (<i>Trifolium arvense</i>)
Red campion (<i>Silene dioica</i>)	Green alkanet (<i>Pentaglottis sempervirens</i>)
Yarrow (<i>Achillea millefolium</i>)	Shepherd's purse (<i>Capsella bursa-pastoris</i>)
Ox-eye daisy (<i>Leucanthemum vulgare</i>)	Wild cherry (<i>Prunus avium</i>)
Dandelion (<i>Taraxacum</i> agg.)	Elder (<i>Sambucus nigra</i>)
Goat's-beard (<i>Tragopogon pratensis</i> agg.)	Black medick (<i>Medicago lupulina</i>)
Greater celandine (<i>Chelidonium majus</i>)	Wild cabbage (<i>Brassica oleracea</i>)
Creeping thistle (<i>Cirsium arvense</i>)	Black nightshade (<i>Solanum nigrum</i>)
Spear thistle (<i>Cirsium vulgare</i>)	Wall lettuce (<i>Mycelis muralis</i>)
Canadian golden-rod (<i>Solidago Canadensis</i>)	Rowan (<i>Sorbus aucuparia</i>)
Common chickweed (<i>Stellaria media</i>)	Oak (<i>Quercus robur</i>)
Common mouse-ear (<i>Cerastium holosteoides</i>)	Elm (<i>Ulmus minor</i> agg)
Red dead-nettle (<i>Lamium purpureum</i>)	Lime (<i>Tilia x europaeus</i> agg)
White dead-nettle (<i>Lamium album</i>)	London plane (<i>Platanus x hispanica</i>)
Common nettle (<i>Urtica dioica</i>)	Silver birch (<i>Betula pendula</i>)
Sheep's sorrel (<i>Rumex acetosella</i>)	Apple (<i>Malus domestica</i>)
Broad-leaved dock (<i>Rumex obtusifolius</i>)	
Pineappleweed (<i>Marricaria matricarioides</i>)	
Wild radish (<i>Raphanus raphanistrum</i>)	
Wild rose (<i>Rosa canina</i> agg.)	
Dove's-foot Crane's-bill (<i>Geranium molle</i>)	
Small-flowered crane's-bill (<i>Geranium pusillum</i>)	
Herb Robert (<i>Geranium robertianum</i>)	
Common stork's-bill (<i>Erodium cicutarium</i>)	
Ivy (<i>Hedera helix</i>)	
Hogweed (<i>Heracleum sphondylium</i>)	
Spanish bluebell (<i>Hyacinthoides hispanica</i>)	
Cleavers (<i>Galium aparine</i>)	
Perforate St. John's wort (<i>Hypericum perforatum</i>)	
Common Cat's-ear (<i>Hypochaeris radicata</i>)	
Broom (<i>Cytisus scoparius</i> ssp. <i>Scoparius</i>)	
White bryony (<i>Bryonia dioica</i>)	
Hop (<i>Humulus lupulus</i>)	
Hawthorn (<i>Crataegus monogyna</i>)	

Appendix 2: Bat survey records 2010/11/12/April 2013

Date	Species	Number of passes	Habitat/Comment
2010	Common Pipistrelle	67	Mostly in or around woodland glades, cool conditions
2010	Soprano Pipistrelle	2	Mostly in or around woodland glades, cool conditions
2012	Common Pipistrelle	48	Open Heathland areas, Woodland fringes and Vinegar Pond, mild conditions
2012	Soprano Pipistrelle	43	Open Heathland areas, Woodland fringes and Vinegar Pond, mild conditions
2012	Noctual	5	Open Heathland areas, Woodland fringes and Vinegar Pond, mild conditions
2012	Myotis	7	Open Heathland areas, Woodland fringes and Vinegar Pond, mild conditions
2012	Daubenton	1	Open Heathland areas, Woodland fringes and Vinegar Pond, mild conditions
2013	Common Pipistrelle	26	Open Heathland areas and Woodland fringes, mild conditions
2013	Soprano Pipistrelle	6	Open Heathland areas and Woodland fringes, mild conditions
2013	Brown Long Eared	1	Open Heathland areas and Woodland fringes, mild conditions

Appendix 3: Mousehold Heath 2012/13 Butterfly Records.

Species	Distribution/Status	Habitat: Egg/Caterpillar
Comma, <i>Polygonia c-album</i>	Resident	Hop, Common Nettle, Bramble etc.
Essex Skipper, <i>Thymelicus lineola</i>	Resident	Various grasses, especially Cocks-foot, Creeping Soft-grass and Tor grass.
Small Skipper, <i>Thymelicus sylvestris</i>	Resident	Grasses especially Yorkshire Fog and Creeping Soft grass.
Large Skipper, <i>Ochlodes venata</i>	Resident	Various grasses.
Common Blue, <i>Polyommatus icarus</i>	Resident	Legumes.
Holly Blue, <i>Celastrina argiolus</i>	Resident	Holly and variety of other plants.
Small Copper, <i>Lycaena phlaeas</i>	Resident	Open ground. Common and Sheep's Sorrel.
Green Hairstreak, <i>Callophrys rubi</i>	Resident. Local.	Heathland. Gorse.
Large White, <i>Pieris brassicae</i>	Resident	Various.
Small White, <i>Pieris rapae</i>	Resident	Various.
Green-veined White, <i>Artogeia napi</i>	Resident	Damp, grassy and flowery places. Various crucifers.
Purple Hairstreak, <i>Neozephyrus quercus</i>	Resident	Oak trees.
Gatekeeper, <i>Pyronia tithonus</i>	Resident.	Various grasses.
Meadow Brown, <i>Maniola jurtina</i>	Resident	Various grasses.
Ringlet, <i>Aphantopus hyperantus</i>	Resident	Various grasses, shrubs, bramble etc.
Peacock, <i>Inachis io</i>	Resident	Common Nettle, Buddleia etc.
Painted Lady, <i>Vanessa cardui</i>	Resident. Migrant.	Open ground. Thistles, mallows, nettles etc.
Red Admiral, <i>Vanessa atalanta</i>	Resident. Migrant.	Nettles, buddleias etc.
Orange-tip, <i>Anthocharis cardamines</i>	Resident.	Crucifers etc.
Brimstone, <i>Gonepteryx rhamni</i>	Resident.	Thistles, buckthorn etc.
Speckled Wood, <i>Pararge aegeria</i>	Resident.	Woodland glades, etc. Various grasses, bramble etc.

Small Heath, Coenonympha pamphilus	Resident	Acid grassland and open areas. Various grasses.
White Admiral, Limenitis camilla	Resident. Scarce.	Woodland rides, etc. Honeysuckle and bramble.
White-letter Hairstreak, Satyrium w-album	Resident. Local	Mature woodland with open areas and sunny glades. Elm.

Appendix 4: Bird surveys

This table shows the results of a Common Bird Census (CBC) Survey, using a British Trust for Ornithology (BTO) methodology, carried out by a Mousehold Heath Warden with the help of volunteers from the community.

Bird Species Recorded.	Number of territories recorded along transect - P&P car park to St. James Hill, Spring 2009.	Number of territories recorded along transect - P&P car park to St. James Hill, Spring 2010.	Number of territories recorded along transect – P&P car park to St James’ Hill, Spring 2011	Number of territories recorded along transect – P&P car park to St James’ Hill, Spring 2012
Blackbird	12	22	17	12
Blackcap	3	6	9	4
Blue Tit	5	12	9	9
Chaffinch	3	16	8	13
Chiffchaff	3	3	6	5
Coal Tit	0	2	2	3
Common Whitethroat	0	2	2	2
Dunnock	2	4	6	10
Garden Warbler	0	0	1	1
Goldcrest	3	4	2	4
Goldfinch			1	1
Greater Spotted Woodpecker	3	3	0	2
Great Tit	6	9	11	9
Greenfinch	1	3	0	3
House Sparrow	1	1	1	1
Jay	2	2	1	2
Long Tailed Tit	4	6	5	2
Mistle Thrush	1	1	1	1
Robin	25	29	29	40
Song Thrush	4	3	2	4
Sparrowhawk	0	1	0	0
Tree Creeper	0	2	2	1

Willow Warbler	2	2	1	1
Wren	20	19	28	28
Kestrel	08.04.09, 22.05.09.	17.03.10, 19.04.10, 26.04.10.	25.03.11 15.05.11	07.05.12
Magpie	22.05.09	31.03.10, 19.04.10.	23.03.11 02.06.11	12.05.12
Marsh Tit		26.04.10		

Appendix 5: Moth species recorded on Mousehold Heath.

Record Date	Species	Status/Distribution	Habitat/Comment
	Acleris ferrugana (Rusty Oak Button)	Resident. Common.	Woodland. Oaks and willow.
2013	Adela reaumuriana (Green Long-horn)	Resident. Common.	Leaf litter.
2013	Adoxophyes orana (Summer Fruit Tortrix)	Resident. Local.	Gardens, orchards & parks. Many trees & other plants.
	Agriphila geniculea (Elbow-stripe Grass-veener)	Resident. Common.	Grassland, heathland, etc. Grasses.
	Agriphila stramineella (Pearl veener)	Resident. Common.	Grassland, heathland, etc. Grasses.
2012	Angle Shades (Phlogophora meticulosa)	Resident and immigrant. Common.	Ubiquitous. Wide range of herbaceous and woody plants.
	Antler Moth (Cerauteryx graminis)	Resident. Common.	Grassland. Hard-bladed grasses, including Sheep's-fescue.
	Apotomis betuleana (Birch Mistle)	Resident. Common.	Woodland edge, heathland, waste land and scrub. Birches.
	Battus lunaris		
	Beautiful Golden Y (Autographa pulchrina)	Resident. Common.	A wide range of habitats. Herbaceous plants.
2012	Beautiful Yellow Underwing (Anarta myrtilis)	Resident. Few heathlands in Norfolk	Heathlands & Moorlands. Heather & Bell heather.
	Bee Moth		
2012	Black Arches (Lymantria monacha)	Resident. Local.	Woodland. Mature oaks.
	Black Rustic (Aporophya nigra)	Resident. Common.	Open heathland, moorland and grassy areas. Woody plants.
	Blastobasis adustella	Resident. Common.	Variety. Yew woodland, heath, gardens, etc,

2013	Bordered Pug (<i>Eupithecia succenturiata</i>)	Resident. Common.	Disturbed open ground. Mugwort.
2012	Bordered White (<i>Bupalus piniaria</i>)	Resident. Common.	Pine woodland (often planted on heathland). Pine.
2013	Bright-line Brown-eye (<i>Lacanobia oleracea</i>)	Resident. Common.	Occurs in most habitats. Many wild & cultivated plants.
2012	Brimstone (<i>Opisthograptis luteolata</i>)	Resident. Common.	Woodland, scrub and on acid heathland
	Brindled Green (<i>Dryobotodes eremita</i>)	Resident. Common.	Woodland, parklands, gardens, etc. Oak, Hazel, etc.
2012	Broad-bordered Yellow Underwing (<i>Noctua fimbriata</i>)	Resident. Common.	Variety. Herbaceous plants.
	Brown Rustic (<i>Rusina ferruginea</i>)	Resident. Common.	Variety. Wide variety of broadleaved plants.
2012	Brown Silver-line (<i>Petrophora chlorosata</i>)	Resident. Common.	Most places where bracken occurs.
2012	Buff Arches (<i>Habrosyne pyritoides</i>)	Resident. Common.	Wide variety. Bramble
2012	Buff Footman (<i>Eilema depressa</i>)	Resident. Local.	Woodland, scrub, heathland, etc. Lichens/algae.
	Burnished Brass	Resident. Common.	Gardens, hedgerows, etc.
2012	Carcina quercana (Long-horned Flat-body)	Resident. Common	A wide range of trees and shrubs.
	Catoptria pinella		
2012	Cinnabar (<i>Tyria jacobaeae</i>)	Resident. Common.	Open habitats where food plant grows. Ragwort
2012	Clay (<i>Mythimna ferrago</i>)	Resident. Common.	Wide range of habitats. Grasses.
	Cloaked Minor (<i>Mesligia furuncula</i>)	Resident. Common.	Open, well-drained grassland on light soils. Grasses.
2012	Clouded Border (<i>Lomaspilis marginata</i>)	Resident. Common.	Variety. Aspen, poplars, sallows and willows.
	Clouded Silver	Resident. Common.	Variety. Hawthorn, blackthorn, etc.
	Cnephasia genitalana		
	Coleophora lutipennella		

	Common Carpet (<i>Epirrhoe alternata alternata</i>)	Resident. Common.	Variety. Cleavers and bedstraws.
	Common Emerald	Resident. Common.	Woodland, hedgerows, etc. Hawthorn, etc.
	Common Footman		
2012	Common Marbled Carpet (<i>Chlorodysta truncata</i>)	Resident. Common.	Wide range. Many plants including, birches, heathers, etc.
	Common Pug		
2012	Common Rustic (<i>Mesapamea secalis</i>)	Resident. Common.	Grassy places. Grasses.
	Common Wainscott		
	Common White Wave		
	<i>Conobathra pinella</i>		
	<i>Conobathra repandana</i>		
2012	Copper Underwing	Resident. Common.	Variety. Low-growing shrubs, etc.
	Coxcomb Prominent		
2012	Current Pug (<i>Eupithecia assimilata</i>)	Resident. Common.	Variety. Wild Hop, Black Currant and Red Currant.
	<i>Cydia splendana</i>		
2012	Dark Arches		
	Dark Fruit-tree Tortrix (<i>Pandemis heparana</i>)	Resident. Common.	Woodland, hedgerows, scrub. Many deciduous trees, shrubs
2012	Dark Gorse Piercer (<i>Grapholita intemann</i>)	Resident. Local.	Heathland and moorland. Gorse.
	Dingy Footman		
2012	<i>Dipleurina lacustrata</i> (Little Grey)	Resident. Common.	Variety. Mosses.
	Dot Moth		
	Double Square-spot		
	Double Striped Pug (<i>Gymnoscelis rufifasciata</i>)	Resident. Common.	A wide range. Flowers of many plants.
2012	Dun-bar (<i>Cosmia trapezina</i>)	Resident. Common.	Trees and shrubs.
	Dusky Brocade		
2012	Dusky Hook-tip (<i>Drepana curvatula</i>)	Immigrant	
	Ear Moth (<i>Amphipoea oculea</i>)		

2012	Elephant Hawkmoth (<i>Deilephila elpenor</i>)	Resident. Common.	Wide variety. Willowherbs and bedstraws.
2012	Endotricha flammealis (Rosy Tabby)	Resident. Common.	Heaths, woods, etc. Variety.
	Engrailed		
2013	Epiblema foenella (White-foot Bell)	Resident. Common.	Variety. Mugwort, southernwood; in roots and stems.
2012	Epibloma uddmanniana (Bramble-shoot moth)	Resident. Common.	Variety where bramble occurs. Bramble.
	Epinotia brunnichana		
2012	Eudemis profundana		
2012	Fan-foot (<i>Zanclognatha tarsipennalis</i>)	Resident. Common.	Variety. Withered leaves, oaks, beech, bramble.
2012	Flame (<i>Axylia putris</i>)	Resident. Common.	A broad range.
2012	Flame Shoulder (<i>Ochropleura plecta</i>)	Resident. Common.	Variety. Herbaceous plants.
	Feathered Thorn (<i>Colotois pennaria</i>)	Resident. Common.	Broadleaved woodland, gardens, etc. Wide range of trees.
	Foxglove Pug		
	Frosted Green (<i>Polyphoca ridens</i>)	Resident. Local.	Broadleaved woodland. Oak species.
2012	Garden Carpet (<i>Xanthorhoe fluctuata fluctuata</i>)	Resident. Common.	Variety. Herbaceous plants.
	Green-brindled Crescent (<i>Allophyas oxyacanthae</i>)	Resident. Common.	Broadleaved woodland, scrub, etc. Hawthorn, etc.
2012	Green Carpet (<i>Colostygia pectinataria</i>)	Resident. Common.	Most habitats. Bedstraws, Sheep's Sorrel, etc.
2012	Grass Emerald (<i>Pseudoterpna pruinata</i>)	Resident. Scarce in Norfolk.	Heathland. Broom, Gorse and Petty Whin.
2012	Green Silver-lines (<i>Pseudoips prasinana</i>)	Resident. Common.	Mainly woodland. Broadleaved trees.
	Grey/Dark Dagger		
	Gypsonoma dealbana (Common Cloaked Shoot)	Resident. Common.	Various trees and shrubs.
	Heart and Club (<i>Agrostis davis</i>)	Resident. Common.	Open dry habitats. Herbaceous plants.

2012	Heart and Dart		
2012	Heath Rustic (<i>Xestia agathina agathina</i>)	Resident. Local. Few sites in Norfolk	Acid heathland. Heather.
2012	Hebrew Character (<i>Orthosia gothica</i>)	Resident. Common	Ubiquitous.
2013	Herald (<i>Scoliopteryx libatrix</i>)	Resident. Common.	Variety. Willows, Aspen & other poplars.
2012	Iron Prominent (<i>Notodonta dromedarius</i>)	Resident. Common.	Broadleaved woodland, heathland etc. Mainly birches.
2012	Large Emerald (<i>Geometra papilionaria</i>)	Resident. Common.	Woodland, scrubby heathland. Birch, Hazel, etc.
	Large Nutmeg (<i>Apamea anceps</i>)	Resident. Local.	Dry grassland. Grasses.
2012	Large Yellow Underwing		
2012	Least Black Archers (<i>Nola confusalis</i>)	Resident. Local	Woodland. Variety of broadleaved trees.
	Leopard Moth		
2012	Lesser Broad-bordered Yellow Underwing		
2012	Lesser Common Rustic (<i>Mesapamea didyma</i>)	Resident. Common.	Grasses, including Cock's-foot and fescues.
2012	Lesser Swallow Prominent	Resident. Common	Heathland. Woodland. Birch.
2012	Lesser Yellow Underwing	Resident. Common.	Ubiquitous. Herbaceous plants.
	Light Arches (<i>Apamea lithoxylaea</i>)	Resident. Common.	Flower, seeds and stem-bases of grasses.
	Light Brown Apple Moth		
2012	Light Emerald (<i>Campaea margaritata</i>)	Resident. Common.	Variety. Range of broadleaved trees and shrubs.
2012	Lime-speck pug (<i>Eupithecia centaureata</i>)	Resident. Common.	Variety. The flowers of many low-growing plants.
2012	Lime Hawkmoth (<i>Mimas tiliae</i>)	Resident. Common.	Limes, elms, downy/silver birch
	Lozotainiodes formosanus	Resident. Local.	Scots Pine.
	Lunar Underwing (<i>Omphaloscelis lunosa</i>)	Resident. Common.	Range of grasslands. Grasses.
	Maiden's Blush (<i>Cyclophora punctaria</i>)	Resident. Local.	Oak woodland. Oak.

	Maple Prominent (<i>Ptilodon cucullina</i>)	Resident. Local.	Woodland, scrub, etc. Field Maple and sycamore.
	Marbled Beauty		
	Marbled Brown		
2012	Marbled Minor (<i>Oligia strigilis</i>)	Resident. Common.	A wide range of grassy places. Grasses.
	Marbled White Spot		
	Merveille du jour (<i>Dichonia aprilina</i>)	Resident. Common.	Broadleaved woodland. Pedunculate, Sessile Oak.
2012	Miller (<i>Acronicta leporina</i>)	Resident. Local.	Heathland, broadleaved woodland, etc. Birch.
	Mother of Pearl		
2013	Mother Shipton (<i>Callistege mi</i>)	Resident. Common.	Open grassy places, including heathland. Clovers and grasses
	Mottled Beauty (<i>Alcis repandata</i>)	Resident. Common.	Variety. Many woody & herbaceous plants.
	Mottled Rustic		
2013	Nematopoon swammerdamella (Large Long-horn)	Resident. Local.	Various herbaceous plants.
2013	Nemophora degeerella (Yellow- barred Long-horn)	Resident. Common.	Leaf litter.
	Neofaculta ericetella	Resident. Local in Norfolk	Heathland. Heather, Bell Heather.
2012	Nutmeg (<i>Discestra trifolii</i>)	Resident. Common.	A range of open places. Herbaceous plants.
	Nut-tree Tussock (<i>Colocasia coryli</i>)	Resident. Common.	Broadleaved woodland. Hazel, birch, etc.
	Oak Hook-tip		
2012	Old Lady (<i>Morno maura</i>)	Resident. Local.	Variety. Herbaceous plants.
	Opostega salaciella	Resident. Local. Rare in Norfolk	Sheep's sorrel.
2012	Orange Footman (<i>Eilema sororcula</i>)	Resident/suspected imm. Local.	Woodland/scrub. Lichen growing on trees.
2012	Orange Swift (<i>Hepialus sylvina</i>)	Resident. Common.	Rough grassy places. Roots of herbaceous plants.
2012	Orange Underwing (<i>Archiearis parthenias</i>)	Resident. Local.	Birch scrub on heathland, open ground, etc. Birch also Rowan.
2013	Pandemis cerasana (Barred Fruit-tree Tortrix)	Resident. Common.	Deciduous woodland, scrub, etc.

	<i>Pandemis corylana</i> (Chequered Fruit-tree Tortrix)	Resident. Common.	Woodland, scrub, etc.
2013	Peach Blossom	Resident. Common.	Light woodland, scrub, etc. Bramble.
2012	Pebble Hook-tip (<i>Drepana falcatoria falcatoria</i>)	Resident. Common.	Woodland, heathland, etc. Birch and Alder.
	Peppered Moth		
	<i>Phlyctaenia coconata</i>		
2012	<i>Pyrausta aurata</i> (Small Purple and Gold)	Resident. Common.	Grassland. Mints, Calamint, Marjoram, etc.
	<i>Phycita roborella</i> (Dotted Oak knot-horn)	Resident. Common.	Woodland, heathland, etc. Oak.
	<i>Phylctaenia stachydalis</i>		
2012	Pine Hawkmoth (<i>Hyloicus pinastri</i>)	Resident. Local.	Conifer plantations & wooded heathlands. Mainly Scots Pine
	Poplar Grey (<i>Acronicta megacephala</i>)	Resident. Common.	Various. Poplar spp.
	Purple Clay		
	Red-green Carpet (<i>Chlorodysta siterata</i>)	Resident. Common.	Broadleaved woodland, hedgerows
	Red-lined Quaker (<i>Agrochola lota</i>)	Resident. Common.	Woodland rides, scrub, hedgerows in open areas. Willows.
	Riband Wave		
	Ringed China-mark		
2012	Ruby Tiger (<i>Phragmatobia fuliginosa</i>)	Resident. Common.	Open habitats. Herbaceous plants, ragwort, heather, etc.
	Sallow (<i>Xanthia icteritia</i>)	Resident. Common.	Broadleaved woodland, heathland, etc. Catkins of willows.
	Sallow Kitten (<i>Furcula furcula</i>)	Resident. Common	Variety. Usually willows.
2012	Scalloped Hazel (<i>Odontopera bidentata</i>)	Resident. Common.	Variety. A wide range of woody plants.
2012	Scalloped Hook-tip	Resident. Common.	Woodland, scrub, heathland, etc. Birch.
	Scalloped Oak (<i>Crocallis elingaria</i>)	Resident. Common.	Variety.
2012	Scarce Footman (<i>Eilema complana</i>)	Resident. Local.	Wide variety. Lichens.

2013	Scarce Silver-lines (<i>Bena bicolorana</i>)	Resident. Local.	Broadleaved woodland & parkland. Oak/birch leaves/buds.
2013	Scorched Wing (<i>Plagodis dolabraria</i>)	Resident. Local.	Broadleaved woodland & scrub. Mainly oaks & birches.
	Setaceous Hebrew Character		
2012	Shuttle-shaped Dart (<i>Agrotis puta puta</i>)	Resident. Common.	A wide variety. Herbaceous plants.
2012	Silver Y (<i>Autographa gamma</i>)	Immigrant.	Low-growing herbaceous plants.
2012	Single-dotted Wave (<i>Idaea seriata</i>)	Resident. Common.	Variety. Flowers of various plants.
	Six-spot Burnet		
2013	Small Angle Shades (<i>Euplexia lucipara</i>)	Resident. Common.	Variety. Wide range of herbaceous plants.
2013	Small Blood-vein (<i>Scopula imitaria</i>)	Resident. Common.	Wide range. Privet, honeysuckle, herbaceous plants.
	Small Dusty Wave		
2012	Small Fan-footed Wave (<i>Idaea biselata</i>)	Resident. Common.	Broadleaved woodland, etc.
	Small Magpie		
	Small Quaker (<i>Orthosia cruda</i>)	Resident. Common.	Wooded areas, heathland. Oaks and other trees.
2013	Small Rivulet (<i>Perizoma alchemillata</i>)	Resident. Common.	Wide variety. The flowers/seeds of Common Hemp-nettle
2013	Small Yellow Wave (<i>Hydrelia flammeolaria</i>)	Resident. Common.	Broadleaved woodland. Field Maple, Sycamore, Alder.
	Smokey Wainscot		
	Snout (<i>Hypena proboscidalis</i>)	Resident. Common.	Variety. Common Nettle.
	Spectacle (<i>Abrostola tripartita</i>)	Resident. Common.	Various. Common Nettle.
2012	Square-spot Rustic (<i>Xestia xanthographa</i>)	Resident. Common.	All types of grassland. Mainly grasses, but also plantains.
	Straw Dot		
2012	Straw Underwing (<i>Thalpoephila matura</i>)	Resident. Common	Most open habitats. Grasses.
2012	Streak (<i>Chesias legatella</i>)	Resident. Common.	Heathland, etc. Broom

	Svensson's Copper Underwing		
	Swallow Prominent (Pheosia tremula)	Resident. Common.	Variety. Poplars, willows and sallows.
2012	Swallow-tailed Moth (Ourapteryx sambucaria)	Resident. Common	Variety.
2013	Sycamore (Acronicta aceris)	Resident. Local.	Urban areas. Broadleaved trees.
2012	Tawney Shears (Hadena perplexa perplexa)	Resident. Common.	Grassland. Grass species.
	Timothy Tortrix (Aphelia paleana)		
2012	Tortrix viridana (Green Oak Tortrix)	Resident. Common.	Oak and open woodlands. Oak and other deciduous trees.
	Treble Brown Spot	Resident. Local.	Woodland rides/edges. Dead leaves.
2012	Treble Lines (Charanyca trigrammica)	Resident. Common.	Many open situations. Herbaceous plants.
2012	True Lover's Knot (Lycophotia porphyrea)	Resident. Common.	Acid heathland. Heather and Bell Heather.
2012	Uncertain (Hoplodrina alsines)	Resident. Common.	Most lowland habitats. Herbaceous plants.
	Vapourer (Orgyia antiqua)	Resident. Common.	Various. Broadleaved trees and shrubs.
	Vine's Rustic (Hoplodrina ambigua)	Resident/suspected imm. Common.	Variety. Herbaceous plants.
	V-Pug (Chlorodystis v-ata)	Resident. Common.	Parks, gardens, etc. Flowers of various plants.
2012	White-line Dart (Euxoa tritici)	Resident. Common	Heathlands, etc. Herbaceous plants.
	White Point (Mythimna albipuncta)	A regular immigrant. Local.	Primarily coastal. Various grasses.
	White Satin Moth	Resident. Local.	Variety. Poplars, sallows and willows.
2012	Willow Beauty (Peribatodes rhomboidaria)	Resident. Common.	Variety. Wide range of broadleaved trees, shrubs, climbers.
	Yellow-barred Brindle (Acasis viretata)	Resident. Local.	Various. Holly, Ivy, Wild Privet, Dogwood, Hawthorn.
	Yellow-line Quaker (Agrochola macilenta)	Resident. Common.	Heathland, broadleaved woodland, scrub, etc. Trees/heathers

2012	Yellow Shell (Camptogramma bilineata)	Resident. Common.	Many lowland situations. Low- growing broadleaved plants.
	Ypsolopha alpella	Resident. Local.	Oak woodland. Oak.
	Ypsolopha parenthesella	Resident. Common.	Variety. Oaks, hazel, birch, etc.