

Possible and potential moth extinctions in England

Brief background and methodology

In the autumn of 2014 Butterfly Conservation took part in an exercise prompted by Natural England to identify species which could potentially be extinct in England by 2020 (including those we believe are extinct already but which did not appear in Natural England's *Lost Life* listings of 2010 – see below). Needless to say, for the moths, this exercise required a degree of informed speculation.

Time and resources did not allow a full review of all of the moth species occurring in England, although the National Moth Recording Scheme and the *Provisional Atlas of the UK's Larger Moths* (Hill *et al*, 2010) enabled a relatively quick listing of candidate larger moths. Once identified, each candidate species was assessed, this usually including examining supporting site-related/occurrence data and in some cases contacting local experts to gain an insight to potential or ongoing threats.

This was clearly not an approach that could be used for the micro-moths. In this case *A review of the Status of Microlepidoptera in Britain* (Davis, 2012) was used as the starting point. Species categorised as pRDB1 (Endangered) and pRDB2 (Vulnerable) were covered for the initial selection criteria (due to time restraints those listed in other threat categories were not assessed, however the majority of these are also likely to be less highly restricted in distribution). Various sources of information were then used to assess these species. This included the distribution maps for micro-moths available on the Moths Count website, relevant available literature, the underlying data on occurrence supplied by the relevant county recorders for the microlepidoptera review and, importantly, information and, in some cases, views on potential threat levels from county and national experts. It should be highlighted here that several species confined to one or a very few sites were excluded from this listing at this stage as they were considered not to be at risk from any immediate or imminent threat, for example the relevant site was considered to be in favourable management.

This was necessarily a 'quick and dirty' review due to the time constraints and resources available. However, the moth species identified are listed below with very brief 'pen pictures' for each. It is distinctly possible that records have been missed, particularly for the microlepidoptera, and it is also possible some species have been overlooked altogether, for example species of microlepidoptera of a lower threat category but whose distribution is predominantly in Scotland and or Wales with just a few records for England. If you are aware of any more recent records to those mentioned in the species accounts, or additional potential candidate species then please contact Mark Parsons (mparsons@butterfly-conservation.org). It should be borne in mind that this review was undertaken primarily at the species level, although there are several subspecies that could also be considered at risk in England.

We list the species below to encourage targeted searches for these species with the aim of gaining an improved understanding of their status in England and hopefully remove them from this provisional 'at risk of extinction' listing. This list should also be viewed in conjunction with Natural England's recently produced *Lost Life: England's lost and threatened species* report available on the Natural England website. Section 4 of that report includes a list of moths believed extinct in England, although this is rather out of date (as some species have either recolonised or been rediscovered) and does include a number of errors. Several Section 41 (former UK Biodiversity Action Plan) species that are at risk of extinction are not included in the list below (most covered in more detail by Parsons, 2013), these are as follows:

Stigmella zelleriella
Agonopterix capreolella
Syncopacma albipalpella
Coleophora wockeella
Scythris siccella
Sciota hostilis
Dark Bordered Beauty *Epione vespertaria*
Speckled Footman *Coscinia cribraria*
Reddish Buff *Acosmetia caliginosa*
Marsh Moth *Athetis pallustris*

We would like to take this opportunity to thank all those county recorders and national and local experts who provided advice/data etc., often at short notice, for this review.

References

Davis, T. 2012. *A review of the Status of Microlepidoptera in Britain*. Butterfly Conservation, Wareham. (Butterfly Conservation Report No. S12-02).

Hill, L., Fox, R., Randle, Z. & Parsons, M. 2010. *Provisional Atlas of the UK's Larger Moths*. Butterfly Conservation, Wareham.

Parsons, M. 2013. The Top Ten Most Endangered Moths in Britain. *Atropos*, No. 50: 26-36.

The species

Stigmella spinosissimae: Only ever recorded from Cheshire and Northumberland in England, but also known from Scotland and Wales. Associated with burnet rose, the larva mining a leaf. The latest record for England appears to be from 1998. Possibly overlooked.

Pseudopostega auritella: Seemingly last recorded in 2000 from the Catfield/Statham area of Norfolk, with a short series of records leading up to that date. Historically known from Ranworth, Norfolk, and Wicken Fen, Cambridgeshire. A fenland species associated with marsh marigold. Possibly overlooked.

Nematopogon magna: *N. magna* and *N. pilella* have been confused in the British literature until their separation in 1984. Consequently the identity of many older records is hard to determine. However, there appears to be just a single record for England, that from Yorkshire in 1904. The species has been found on moorland and wooded heathland. Has been recorded in Scotland. A Section 41 species.

Lampronia pubicornis: The most recent record of this moth in England appears to be from 1979, that from Arnside, Lancashire. It has formerly been recorded from other sites in

Lancashire, Yorkshire, Co. Durham and south Cumbria, and several of these records are from the 19th century. The occurrence of the species in Northumberland is open to question. The species is associated with habitats on the basic rocks and sandhills where the foodplant, burnet rose, grows in extensive stands. The adults fly by day in sunshine in May and June. Possibly overlooked.

Bankesia conspurcatella: This species only seems to have been recorded in Hampshire in the period since 2000, with records formerly from Kent and Yorkshire. The larva lives within a portable case coated in granules of woody material. Found in woodland, hedgerows, gardens and on stone walls. Possibly overlooked.

Infurcitinea albicomella: A micro-moth that is restricted to a single site in Devon. Unfortunately, it appears to have been recently eradicated from its original site, at Torquay, through *Cotoneaster* clearance in an effort to promote native cliff vegetation. At this site the larva fed on dead leaves of *C. microphyllus* and holm oak. However, a very small population has since been discovered nearby (about 1.5km distant); no *Cotoneaster* is present at this site.

Triaxomasia caprimulgella: This species has been recorded fairly widely over the eastern part of England, from Kent to Lincolnshire, although the only recent (post 2000 records) appear to be from Herefordshire (in 2004), West Kent (2005) and Middlesex (singles in 2002 and 2006). The ecology of this moth is poorly understood, but it may be that it has a preference for hollow trees, the larva possibly feeding on dead insects in spiders' webs. Possibly overlooked.

Cephimallota crassiflavella: Probably last recorded in England around the turn of the 19th century. Little is known of the moths' ecological requirements, although it may be associated with the nests of bumble bees and other aculeate Hymenoptera. Recorded from Kent and Surrey.

Phyllonorycter insignitella: In England it has been recorded in Yorkshire, Co. Durham and Kent. In the former two counties it was recorded in the 19th century or just into the early 20th century. Its status in Kent is not known although the last record for the county appears to be from 1991. Associated with clover or common restharrow, the larvae of this species live within a mine on a leaflet. Double-brooded. Also recorded in Scotland. Possibly overlooked.

Rhigognostis senilella: This species appears to have been last recorded in England in 1928 from Cumbria. Also recorded in the 19th century in Yorkshire, with an old record from Northumberland which is considered dubious and with records from Co. Durham that are also thought open to question. It is associated with rock-cress, flixweed, dame's-violet and possibly other Cruciferae. Found on rocky coasts or in montane habitats. Known from Scotland, this moth has also been recorded in Wales.

Acrolepiopsis betulella: Recently recorded from Coombe Bridges, Co. Durham (2012). Otherwise only known in England from a single Yorkshire example and also from Co. Durham, all from the 19th century. Associated with shaded woodland, the larva feeding in the flowers and seed capsules of ramsons. Known from Scotland. Possibly overlooked.

Argyresthia aurulentella: This species has been widely recorded over England, with records from the 1980s for Berkshire, Wiltshire and Cumbria, but apparently no records in the country since that time (although there are records for Oxfordshire and Herefordshire for which no date could be found). Associated with juniper, the larva mines the leaves. Found on chalk downland and open woodland. Recorded from Scotland and Wales. Possibly overlooked.

Leucoptera orobi: In England only known from Yorkshire and Co. Durham from old records and possibly not since the 19th century. Has been found in recent years in Scotland. Associated with bitter vetch and possibly other *Lathyrus* species. Found on moorland, hillsides and open woodland. Formerly considered a form of *L. lathyrioliella*.

Atemelia torquatella: A northern species, in England known from Lancashire, Co Durham and Cumbria, the most recent seemingly being from 1973. The occurrence of the species in Northumberland is considered open to question. Associated with mosses and the lower slopes of mountains, and found amongst regenerating birch, the larva feeding on birch, especially downy birch. Recorded widely in Scotland. Possibly overlooked.

Depressaria olerella: In England recorded from the Woolmer Forest area, Hampshire, but apparently not seen since the 1980s, when it was seemingly well established. Also reported from Selborne, Hampshire, twice in the 1990s. Formerly known from the New Forest (a single record), Surrey and Norfolk. Associated with yarrow, this is a species of sandy districts or grassy heathland. Recorded in Scotland. Possibly overlooked.

Anacampsis tenerella: Seemingly only recorded from a single site in Lancashire since 2000. Formerly known from Cheshire and Cumbria. Coastal, found in sandy areas. Associated with creeping sallow, the larva living within spun leaves. Also recorded from parts of Wales and the Isle of Coll, Scotland. An elusive species which could be overlooked.

Bryotropha galbanella: In England this species appears only to be known from Malham Tarn, Yorkshire, where it has been recorded on two occasions, 1958 and 2011. Associated with mosses. Widely distributed in Scotland. Possibly overlooked.

Xystophora pulveratella: This species does not appear to have been recorded in England since 1912 (Co. Durham). Also historically recorded from Yorkshire. A record for Devon is considered unreliable and a record for Gloucestershire is also open to question. Associated with bird's-foot trefoil or bitter vetch. Very local in the Highlands of Scotland.

Athrips tetrapunctella: This species was formerly fairly widespread in south-east England and East Anglia but suffered a historic decline with the last known records coming from Wicken Fen (in 1931) and Woodwalton Fen (in 1949). It is a species of damp grassland, fen and woodland edge where the larval foodplant, marsh pea, grows. Possibly overlooked.

Caryocolum blandulella: Known from the sandy coast at Sandwich, Kent, but the date of the most recent record is not known, although it is post 1980. An old record for Hayling Island, Hampshire, has not been confirmed. The larva feeds within seed capsules of little mouse-ear, living between seeds spun together. Has been recently recorded from Carmarthenshire, Wales.

Caryocolum junctella: The most recent record in England appears to be from 2000 when it was found in Worcestershire. Also known from Herefordshire, Northamptonshire, Cheshire, Lancashire, Yorkshire and Cumbria. Associated with lesser stitchwort and *Cerastium* spp., including sticky mouse-ear. Overwinters as an adult. It frequents woodland and sheltered hedgerows and lanes, and has been found breeding in a meadow adjacent to a woodland. Also recorded from northern Scotland and Wales. Possibly overlooked.

Caryocolum huebneri: Probably last recorded during the 19th century. There has been confusion over the records of this species particularly due to misidentification with a related species, but those from Sussex, Kent, Surrey, Berkshire, Bedfordshire and Gloucestershire are most likely to be authentic, although evidence to back some of these up may be lacking. Associated with greater stitchwort.

Coleophora chalcogrammella: In the period since 2000 this species only seems to have been recorded from a single site in Kent, that in 2008. However, it has been recorded widely in the eastern half of England, from Kent north to Yorkshire. Many records are old, although there is a record from Hertfordshire in the 1990s. Associated with field mouse-ear or lesser stitchwort, the larva living within a case. Found on grassland on calcareous soils or slightly acid sandy soils. Possibly overlooked.

Coleophora ramosella: Perhaps now confined to the Blean Wood complex in Kent, although could potentially occur in other woodlands in the general area. The most recent record appears to be from 2008 (West Blean). The larva feed from within a case on a leaf of golden-rod. A single adult has been reported from a site in Hampshire, but golden-rod is not known nearby.

Elachista collitella: In England only recorded from Kent, Dorset and Devon. Does not appear to have been found in the period since 2000, with records from Devon and single record from Dorset in the 1980s. Associated with dry grassland near the coast, the larva feeding within a mine on sheep's fescue, smooth meadow-grass or crested hair-grass. Possibly under-recorded.

Elachista littoricola: Only known in Britain from Hurst Castle and Keyhaven, Hampshire, and not recorded since the 1990s. Associated with grassland close to the sea, the larva feeding within a mine on common couch. Perhaps not searched for in recent years and hence possibly under-recorded.

Elachista cingillella: An infrequently recorded species. There appears to be just a single record in the period from 2000 onwards, that from Gaitbarrows, Lancashire in 2000. There are old records from Kent, Derbyshire and south Cumbria, with a record in the 1980s from Herefordshire. Associated with damp calcareous woodland, the larva feeding within a mine on wood millet. Possibly overlooked.

Elachista geminatella: The only known examples were all found at Merton, Norfolk, in the latter part of the 19th century. It is thought to be associated with dry, sunny calcareous meadows and may be associated with a species of *Luzula*.

Scythris cicadella: Probably last recorded in England in the mid 1850s, but with a record from Bedfordshire in 2006 which may require confirmation. Formerly also recorded in Essex, Suffolk and possibly Surrey. Associated with perennial knawel and annual knawel, found on dry gravelly or sandy soils. The moth flies or jumps in sunshine amongst the foodplant. Possibly overlooked.

Epermenia farreni: There appear to be no records in the period since 2000 for this species in England with the last record from the 1980s in Oxfordshire. Has also been recorded from Essex, Suffolk, Norfolk, Cambridgeshire and Northamptonshire. Associated with wild parsnip, feeding within an individual seed. Found on dry grassland, chalk downland and waste ground. Has been recorded in Scotland. Possibly overlooked.

Clepsis rurinana: Seemingly last recorded in England in the 1920s (from Gloucestershire). Historically also known from Kent, Surrey, Yorkshire and south Cumbria. Frequents open woodland and hedgerows, the larva feeding on a range of deciduous trees and shrubs, such as beech, oak and rose. Recently found in Scotland.

Acleris lipsiana: A northern species that has been recorded in south Cumbria, and with a single record from Roudsea Wood this year (2014). Associated with bilberry, bog-myrtle, cowberry and possibly birch, found on bogs, moorland and mountains. Known from Scotland. Possibly overlooked.

Gynnidomorpha permixtana: In England only recently known from Braunton Burrows, Devon. Formerly also recorded from Kent and Somerset, with a single example from Sussex. Larvae have been found feeding in the seed capsules red bartsia and yellow rattle. Historically known from Wales, but recorded recently in Scotland.

Celypha rurestrana: This species is only known in England from a small area at Ilfracombe, Devon, where it was last found in 1987, despite subsequent searches. It may have been lost when a new theatre was built on the site. The larvae have never been found, but on the Continent they mine the lower stems/roots of *Hieracium umbellatum*. Also recorded from two sites in Wales, but has also seemingly disappeared from these. Possibly overlooked.

Ancylis tineana: In England only known from Fenn's & Whixall Moss, Shropshire, where it was discovered in 2006, and has subsequently been found on the Welsh side of the site. Associated with dwarf stunted growth of birch, the larva living within a silken tube amongst leaves. Otherwise only known from a few sites in Scotland. Possibly overlooked.

Pempeliella ornatella: In England this species now appears to be confined to Folkestone Warren (inc. Samphire Hoe), Kent. There are older records, several of which are from around the turn of the 19th century, from several southern counties, but at least some of these require confirmation. Associated with wild thyme, this moth is extremely local, being found on chalk downland, particularly on steeper slopes with broken ground. Scrub invasion is a threat to this species, particularly on the less steep areas.

Catoptria furcatellus: Formerly reported from Cumbria, with the most recent record being from 1989. A montane species found between 400-1100m. The early stages of the life history are poorly understood, although the larva probably feeds on mosses and possibly some grasses. The adult makes short flights in warm, calm weather. Recently recorded in Scotland and known from two examples in north Wales, the last in 1980. Possibly overlooked.

Kentish Glory *Endromis versicolora*: Last seen in England c.1970. Formerly found in Kent, Sussex, Berkshire, East Anglia, Herefordshire and Worcestershire. Associated with silver birch and found in open birch woodland. Flies in early spring, males flying in sunny or warm conditions, both sexes flying after dark. Still found in parts of Scotland.

Heath Rivulet *Perizoma minorata*: This small geometrid moth has recently been located in Dib Scar and Bastow Wood, Yorkshire, with records of just two single adults since 2000 (2008 and 2013). Formerly known in England from Cumbria and a few sites in Yorkshire. The occurrence of the species in Northumberland and Durham is considered open to question. The moth flies by day, particularly in hot sunshine. It frequents moorland, upland pasture and limestone grassland, the larva feeding on the flowers and seed capsules of eyebright. Recorded in Wales and Scotland. Possibly overlooked.

Marsh Dagger *Acronicta strigosa*: Formerly found in Huntingdonshire and Cambridgeshire and last seen there in 1933. Also historically recorded from the Severn Valley. Associated with hawthorn scrub and overgrown hedges in damp situations, such as fens, marshes and river valleys. A recent record in Sussex is considered to have been an immigrant.

Northern Dart *Xestia alpicola*: It has been recorded in Cumbria and Northumberland, but seemingly not seen in England since the 1970s. This is a montane species associated with crowberry and possibly also heather, bilberry, cowberry, bearberry. Probably overlooked. Still recorded in Scotland. A Section 41 species.

Sword-grass *Xylena exsoleta*: The date of the last resident English example is difficult to judge as it is also an occasional immigrant. The ecology of this species is poorly understood, but it frequents moorland and open woodland, the larva probably feeding on a range of low-growing plants. Still recorded in Scotland and formerly known in Wales. A Section 41 species.

Stout Dart *Spaelotis ravidia*: This moth has been known to be subject to periodic fluctuations in numbers and range expansions, and may even be re-inforced by immigration. However, it has been declining since the 1980s and is currently at a very low ebb, and perhaps even extinct as a resident species. The larva has not been found in the wild, but is probably associated with a range of low-growing plants. It has been found on damp meadows, in marshes and also gardens. Has also been recorded in Scotland and Wales.

Mark Parsons, Butterfly Conservation
January 2015