

Ireland

Red List No. 9



THE IUCN RED LIST  
OF THREATENED SPECIES™

# Macro-moths (Lepidoptera)





Ireland Red List No. 9

Macro-moths (Lepidoptera)

**D. Allen<sup>1</sup>, M. O'Donnell<sup>2</sup>, B. Nelson<sup>3</sup>, A. Tyner<sup>4</sup>, K.G.M. Bond<sup>5</sup>, T. Bryant<sup>6</sup>, A. Crory<sup>7</sup>, C. Mellon<sup>1</sup>, J. O'Boyle<sup>8</sup>, E. O'Donnell<sup>9</sup>, T. Rolston<sup>10</sup>, R. Sheppard<sup>11</sup>, P. Strickland<sup>12</sup>, U. Fitzpatrick<sup>13</sup>, E. Regan<sup>14</sup>.**

<sup>1</sup>Allen & Mellon Environmental Ltd, 21A Windor Avenue, Belfast, BT9 6EE

<sup>2</sup>Joffre Rose, Clone, Castletown, Gorey, Co. Wexford

<sup>3</sup>National Parks & Wildlife Service, Department of the Arts, Heritage and the Gaeltacht, Ely Place, Dublin D02 TW98

<sup>4</sup>Honeyoak, Cronykeery, Ashford, Co. Wicklow

<sup>5</sup>Zoology, Ecology and Plant Science, Distillery Fields, North Mall, University College Cork

<sup>6</sup>Knocknarea, Priest's Road, Tramore, Co. Waterford

<sup>7</sup>113 Dundrum Road, Newcastle, Co. Down, BT33 0LN

<sup>8</sup>Natural Environment Division, Northern Ireland Environment Agency, Department of Agriculture, Environment and Rural Affairs, Klondyke Building, Cromac Avenue, Belfast, BT7 2JA

<sup>9</sup>5 Forgehill Rise, Stamullen, Co. Meath

<sup>10</sup>42 Beechdene Gardens, Lisburn, Co. Antrim, BT28 3JH

<sup>11</sup>Carnowen, Raphoe, Co. Donegal

<sup>12</sup>22 Newtown Court, Maynooth, Co. Kildare

<sup>13</sup>National Biodiversity Data Centre, WIT west campus, Carriganore, Waterford

<sup>14</sup>The Biodiversity Consultancy, 3E King's Parade, Cambridge, CB2 1SJ

Citation:

Allen, D., O'Donnell, M., Nelson, B., Tyner, A., Bond, K.G.M., Bryant, T., Crory, A., Mellon, C., O'Boyle, J., O'Donnell, E., Rolston, T., Sheppard, R., Strickland, P., Fitzpatrick, U., & Regan, E. (2016) *Ireland Red List No. 9: Macro-moths (Lepidoptera)*. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht, Dublin, Ireland.

Cover photos: Bottom left to top right: White Prominent *Leucodonta bicoloria*—photo: Brian Nelson; Burren Green *Calamia tridens*—photo: Brian Nelson; Figure of Eight *Diloba caeruleocephala* caterpillar—photo: Geoff Campbell; Thrift Clearwing *Pyropteron muscaeformis*—photo: Eamonn O'Donnell; Yellow Shell *Camptogramma bilineata*—photo: Geoff Campbell.

Ireland Red List Series Editors: B. Nelson & F. Marnell

© National Parks and Wildlife Service 2016

ISSN2009-2016

## CONTENTS

CONTENTS .....	1
ACKNOWLEDGEMENTS .....	1
EXECUTIVE SUMMARY .....	2
INTRODUCTION .....	3
Recording of macro-moths in Ireland	4
Legal protection	4
Methodology used	4
Nomenclature and checklist	5
Data sources	5
Regionally determined settings	5
SPECIES NOTES .....	11
REFERENCES.....	53
APPENDIX 1 SUMMARY OF THE FIVE CRITERIA (A-E) USED TO EVALUATE IF A TAXON BELONGS IN A THREATENED CATEGORY; CRITICALLY ENDANGERED, ENDANGERED OR VULNERABLE (IUCN, 2012).....	54
APPENDIX 2 CHECKLIST OF IRISH MACRO-MOTHS .....	55

## ACKNOWLEDGEMENTS

This analysis and evaluation of the Irish macro-moth fauna would not have been possible without the hundreds of thousands of records provided by generations of moth enthusiasts and naturalists. Space does not permit us to list each recorder but our sincere thanks are offered to them all. The assistance of colleagues in the National Parks and Wildlife Service, Northern Ireland Environment Agency, Natural History Museum of the National Museum of Ireland, National Museums Northern Ireland (CEDaR and curatorial staff in the Ulster Museum), MothsIreland, Butterfly Conservation (NI) and National Biodiversity Data Centre is gratefully acknowledged. We would like to thank Dr Mark Young for acting as external reviewer of the Red List.

## EXECUTIVE SUMMARY

Based on just over 517,000 records for Ireland, 501 of the 578 species of macro-moths (Lepidoptera) on the Irish list are evaluated for their conservation status using International Union for the Conservation of Nature (IUCN) criteria (IUCN, 2012). Forty-three species of Irish macro-moth are assessed as threatened, which is 8% of the current Irish list, with another 24 (4%) assessed as Near Threatened or Data Deficient. Fourteen species of macro-moth are considered to have become Regionally Extinct as they had not been recorded in the 50 years prior to 31 December 2012. The remaining species are all assessed as being of Least Concern. Of the 78 species that were not assessed, 37 are migrants, eight are considered adventive, 15 were recorded for the first time in Ireland in the ten years prior to 31 December 2012 and the status of 18 species on the Irish list is to be reviewed.

## INTRODUCTION

Moths, together with butterflies, make up the insect order Lepidoptera, one of four species-rich insect orders in Ireland with some 1,500 recorded species. Naturalists further distinguish two types of moth—the micro-moths and the macro-moths—from the butterflies. The two moth divisions are artificial amalgamations of families very loosely based on the physical size of the insects rather than natural evolutionary groups. This Red List covers only the Irish species of macro-moth since the status and distribution of many micro-moth species is currently not well known.

Moths are often characterised – inaccurately – as being dull and, in the mind of many, they are undesirable and troublesome insects. This is also a mistaken view as just a few species are real pests in that they consume food crops, stored food products or objects that people depend on or value. The vast majority live their lives unseen by most people. However, when moths are seen in daylight the appearance of many species can be a revelation showing intricate patterning and colours that is at least the equal of the Irish butterflies. Most moths are undoubtedly secretive and their colours and patterns usually give them daytime camouflage. There are also day-flying moths and, indeed, there are more day-flying moths in Ireland than species of resident butterfly.

As a group, the Lepidoptera play a significant role as herbivores, as pollinators and as a prey item for birds and bats. Many other insects, especially in the Hymenoptera, parasitise species of Lepidoptera. The majority of moths are phytophagous, feeding on plant material as a larva. The pest species, which are mainly micro-moths, include those that feed on animal fibres (fur and feathers), stored food products and crop species. Adults, if they feed at all, feed mainly on the nectars or other sweet exudates from plants.

Moths can be found in every terrestrial habitat in Ireland. The greatest number of species is found in woodland habitats, especially in broad-leaved natural and semi-natural woodlands. Grassland also supports a significant number of species. The habitat of many species, however, is hard to characterise as they often occur in specific circumstances that do not easily fit into botanically-defined habitats. The habitat requirements of the adults and larvae may also differ. The life history of many species is poorly known and the foodplants of some species are still completely unknown, or known but not confirmed in an Irish context.

The association between nocturnal moths and light is well known. The use of light to trap and record moths is, however, a relatively recent development helped by technological and material developments in batteries, bulbs and power management. A wide variety of mobile moth traps have been designed, which allow moth traps to be used wherever they can be carried and placed. These developments continue today and light traps have become the method of choice for moth recording. Previous generations of moth recorders relied on more time-consuming techniques of finding pupae and caterpillars and rearing adults from them, techniques that are rarely practiced today. This difference in recording methodology, and especially the volume of verified records, has to be taken into account when comparing modern and historic datasets.

Regular monitoring of moths is in its infancy in Ireland but several schemes are running that aim to provide some trend data. The longest running of these is the network of Rothamsted traps, which are light traps of a standard design. Several of these operate in Ireland but the data from these is insufficient in geographic coverage and time to produce any trend data for this red list. It is hoped that this will be rectified in the future.

## Recording of macro-moths in Ireland

The first records of Irish macro-moths date from the middle decades of the nineteenth century. Moths and butterflies have been relatively better documented than other insect groups in Ireland and there have been three major catalogues covering the Irish Macrolepidoptera published by Kane (1901), Donovan (1936) and Baynes (1964 with update in 1970). Catalogues have been published by Wright (1964) and Thompson and Nelson (2006) for Northern Ireland.

## Legal Protection

At the time of publication, no moth species are legally protected in Ireland or Northern Ireland. In Ireland a licence is required to operate a light trap under Section 35 of the Wildlife (Amendment) Act, 2000.

## DEVELOPMENT OF THE RED LIST

### Methodology used

With over 570 species of macro-moth recorded in Ireland, an efficient method was required to reduce this figure to those species most likely to be assessed as falling into one of the IUCN threatened categories. Maps were produced for all species comparing the distribution across the two time periods, pre-2000 and 2000-2012. All those involved in the assessment process were then asked to categorise, based on the IUCN criteria, distribution maps, personal knowledge and expert opinion, just those species that they felt should be classified as migrants, adventives, of Least Concern, Data Deficient and Regionally Extinct. In addition, those species new to the Irish list in the ten years prior to 31 December 2012 and those, whose status on the Irish list it was felt needed to be reviewed, were set aside. This reduced the list to 71 species that were thought to fall into a threatened or Near Threatened category. These species were categorised, based on IUCN criteria and expert opinion. This left approximately 30 species that needed further discussion and a meeting, hosted by CEDaR and the Ulster Museum, was held on 13 and 14 November 2015 at which the assessments for all the species was agreed.



**Plate 1:** Attendees at the red list assessment meeting held at the Ulster Museum 13–14 November 2015. From left to right: Dave Allen, Ken Bond, Philip Strickland, Ralph Sheppard, Angus Tyner, John O’Boyle, Clive Mellon, Michael O’Donnell, Eamonn O’Donnell, Brian Nelson and Andrew Crory.

## Nomenclature and Checklist

Appendix 2 provides the latest checklist of the Irish macro-moths. This is based on Bond and O'Connor (2012) which is an update of Bond *et al.* (2006). The scientific and vernacular nomenclature in this Red List follows Agassiz *et al.* (2015) and the numbers given with the species are those from this checklist. There are discrepancies in the status of some species between these three checklists. This document is not the place to amend or correct these differences and this will be done in a planned review of the Irish list.

## Data sources

The distribution data for the species come from the MothsIreland dataset and the Northern Ireland dataset, maintained by the respective moth recorders, Angus Tyner and Andrew Crory. Andrew follows a line of NI macro-moth recorders including Robert Thompson, Ernie Donaldson and, most recently, Ted Rolston. Distribution maps can be found on the MothsIreland website, on the online map viewer of the National Biodiversity Data Centre, on the Moths and Butterflies website of CEDaR and on the National Biodiversity Network.

The version of the dataset used for this analysis included all the records entered in the individual datasets with record date prior to 31 December 2012. The total number of records available was 517,427. Figure 1 shows the number of validated records in the dataset from before 1900, for each decade since 1900 and annually from 2000 to 2012. It can be seen that more than 90% of the records have been gathered since 1980. There are few records in the dataset from before 1960 as the information associated with records from this period lacks sufficient precision to assign a grid reference which is an obligatory element of modern databases. Figure 2 shows the geographical coverage of the validated records by hectad (10x10km squares) of the Irish grid and the coverage in the two time periods used in the assessment of change. Overall coverage exceeds 94% of the Irish hectads and the respective figures for the two time periods are 75% pre-2000 and 85% post-2000.

## Regionally determined settings

The assessment process followed the IUCN categories and criteria (IUCN, 2012a) supplemented by the latest IUCN guidelines for their application at regional levels (IUCN, 2012b). IUCN recommend that regional Red List classifications be carried out as a two-stage process. Stage one is the application of IUCN criteria to the regional population of each species. Stage two involves an assessment of whether the regional extinction threat determined in stage one is affected by the existence of conspecific populations outside of the region in question. For example, a species may be assessed as threatened in Ireland, but it may be common elsewhere and capable of dispersing to Ireland. There is potential therefore for a 'rescue effect' and in such a scenario a threat category can be downgraded. Upgrading is also possible in certain circumstances. All the Irish species were subjected to this two-stage process, but no threat statuses were changed in the second stage.

The time frame for assessing change was determined as 2000-2012 and pre-2000. The number of records in the early time period is approximately 16% so care has to be taken when comparing the two time periods. The cut-off for Regional Extinction was 50 years without a verified record. The IUCN advises that red lists are re-evaluated every five years where possible, or at least every ten years. The next red list assessment for Irish macro-moths should therefore take place no later than 2022.



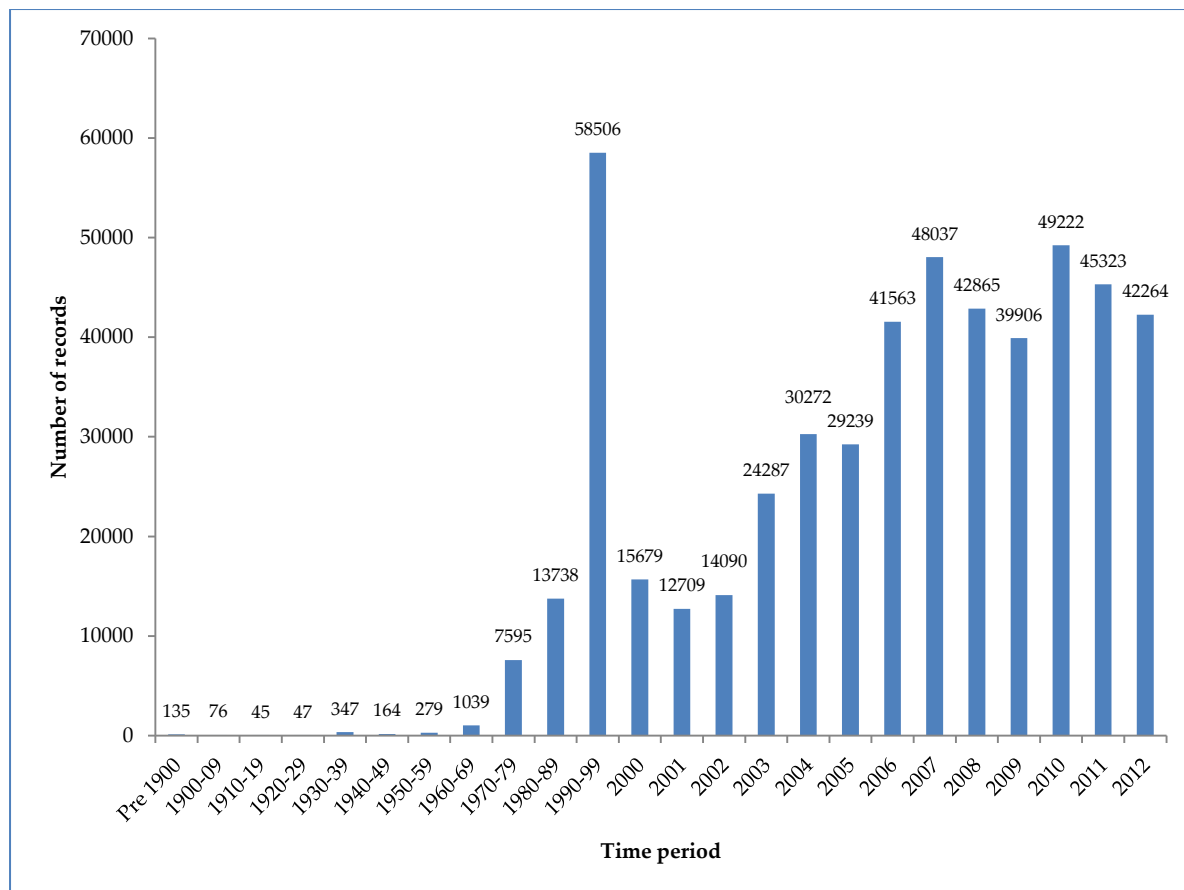


Figure 1: Number of records pre-1900, for each decade from 1900 to 1999 and annually from 2000 to 2012.

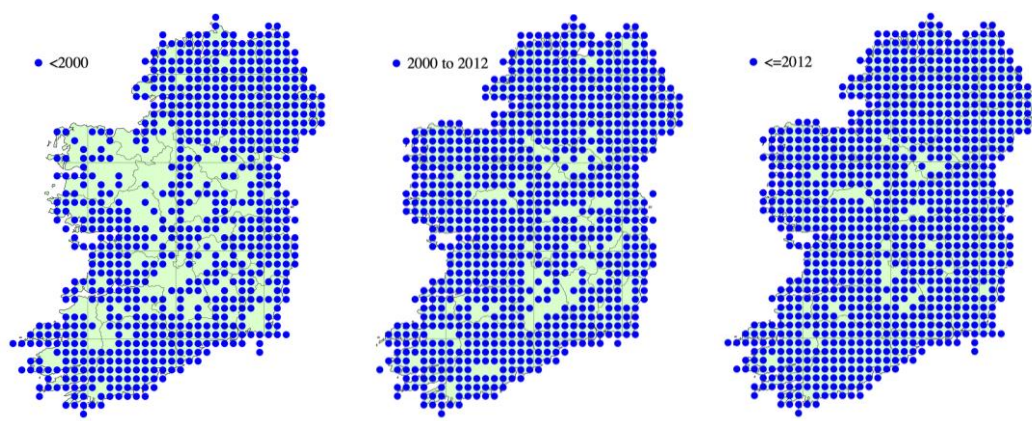


Figure 2: Coverage maps of records of Irish macro-moths showing all the hectads with at least one validated record before the end of 2000 (left–751), all the hectads with records between 2000 and 2012 (centre–895) and all hectads with records prior to 2012 (right–955). The island of Ireland has just over 1000 hectads containing some land.

**Table 1:** Red list of Irish macro-moths. The species are listed within each category in checklist order of Agassiz *et al.* (2015). Category abbreviations RE = Regionally Extinct, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, DD = Data Deficient.

Species	Assessment	IUCN Criteria
52.002 Hornet Moth <i>Sesia apiformis</i>	RE	
70.124 Barberry Carpet <i>Pareulype berberata</i>	RE	
70.125 Slender-striped Rufous <i>Coenocalpe lapidata</i>	RE	
70.215 V-Moth <i>Macaria wauvaria</i>	RE	
70.236 September Thorn <i>Ennomos erosaria</i>	RE	
72.056 Common Fan-foot <i>Pechipogo strigilata</i>	RE	
73.050 Wormwood <i>Cucullia absinthii</i>	RE	
73.058 Mullein <i>Cucullia verbasci</i>	RE	
73.208 Sword-grass <i>Xylena exsoleta</i>	RE	
73.221 Suspected <i>Parastichtis suspecta</i>	RE	
73.243 Blossom Underwing <i>Orthosia miniosa</i>	RE	
73.259 Pale Shining Brown <i>Polia bombycina</i>	RE	
73.360 Triple-spotted Clay <i>Xestia ditrapezium</i>	RE	
74.011 Cream-bordered Green Pea <i>Earias clorana</i>	RE	
52.016 Thrift Clearwing <i>Pyropteron muscaeformis</i>	CR	A2c, B2a,b(iii, iv)
70.070 Mallow <i>Larentia clavaria</i>	CR	B1, B2a,b(i,ii,iii,iv)
70.071 Yellow-ringed Carpet <i>Entephria flavicinctata</i>	CR	B2a,b(iii)
70.191 Manchester Treble-bar <i>Carsia sororiata</i>	CR	A2c, B2a,b(iii, iv)
73.253 Feathered Gothic <i>Tholera decimalis</i>	CR	A2c
73.308 Portland Moth <i>Actebia praecox</i>	CR	A2c
73.316 Light Feathered Rustic <i>Agrotis cinerea</i>	CR	B2a,b(iii,iv)
54.002 Forester <i>Adscita statices</i>	EN	A2c
70.002 Purple-bordered Gold <i>Idaea muricata</i>	EN	B1, B2a,b(iii,iv)
70.036 Maiden's Blush <i>Cyclophora punctaria</i>	EN	A2c, B2a,b(iii)
70.048 Red Carpet <i>Xanthorhoe decoloraria</i>	EN	A2c, B2a,b(iii)
70.099 Beech-green Carpet <i>Colostygia olivata</i>	EN	B1, B2a,b(i,ii,iii,iv)
70.286 Irish Annulet <i>Gnophos dumetata</i>	EN	B1, B2a,b(iii,iv)
71.019 White Prominent <i>Leucodonta bicoloria</i>	EN	B2a,b(iii)
73.132 Sandhill Rustic <i>Luperina nickerlii</i>	EN	A2c, A3c, B2a,b(iii)
73.161 Crescent Striped <i>Apamea oblonga</i>	EN	B2a,b(iii,iv)

**Table 1 (cont):** Red list of Irish macro-moths. Category abbreviations RE = Regionally Extinct, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, DD = Data Deficient.

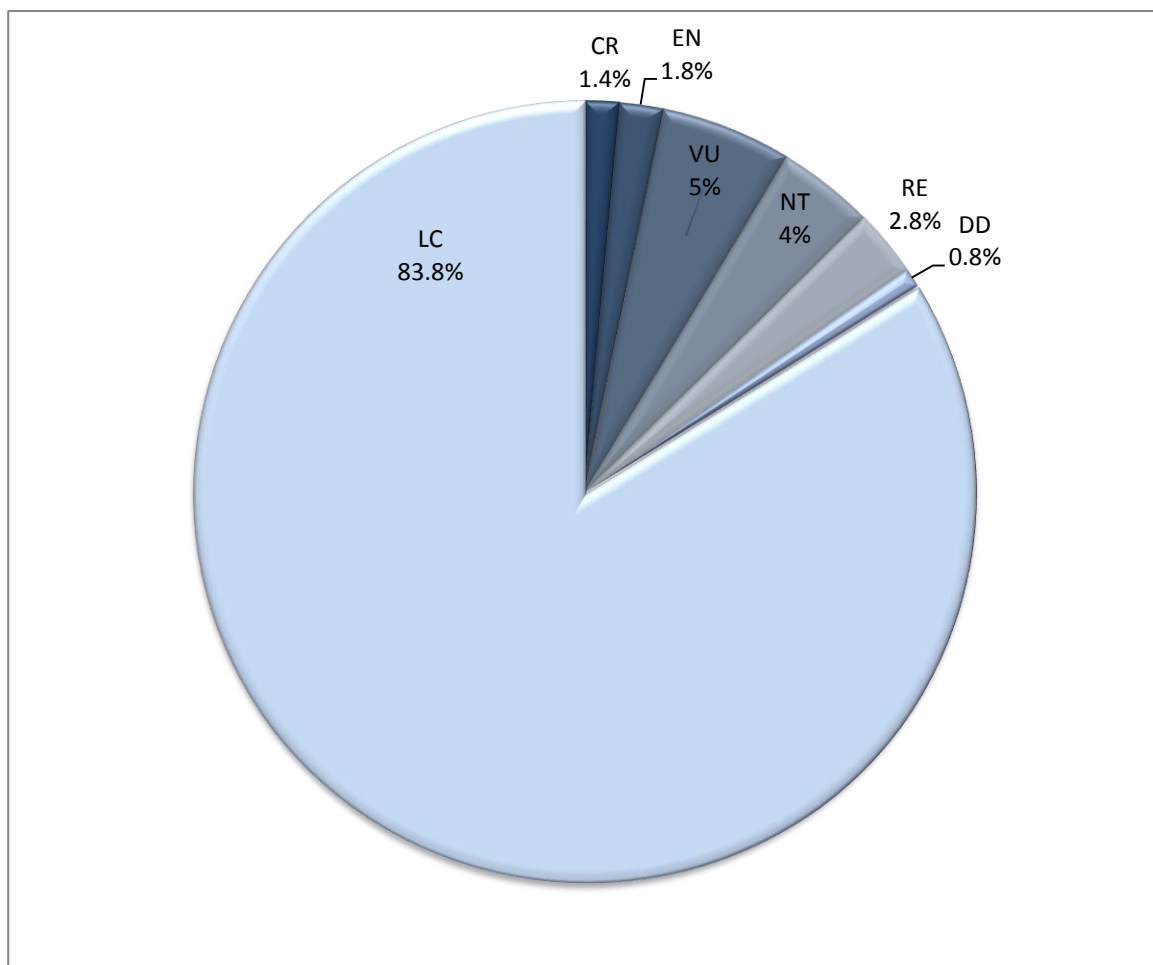
Species	Assessment	Criteria
52.005 Welsh Clearwing <i>Synanthedon scoliaeformis</i>	VU	D2
54.009 Narrow-bordered Five-spot Burnet <i>Zygaena lonicerae</i>	VU	A2c, A3c
70.026 Smoky Wave <i>Scopula ternata</i>	VU	D2
70.056 Royal Mantle <i>Catarhoe cuculata</i>	VU	D2
70.060 Small Argent & Sable <i>Epirrhoe tristata</i>	VU	A1, A2c
70.110 Small Autumnal Moth <i>Epirrita filigrammaria</i>	VU	A2c
70.120 Argent & Sable <i>Rheumaptera hastata</i>	VU	A2c
70.130 Chimney Sweeper <i>Odezia atrata</i>	VU	A2c
70.135 Heath Rivulet <i>Perizoma minorata</i>	VU	D2
70.154 Marsh Pug <i>Eupithecia pygmaeata</i>	VU	A2c
70.166 Plain Pug <i>Eupithecia simpliciatata</i>	VU	A2c
70.176 Freyer's/Mere's Pug <i>Eupithecia intricata</i>	VU	D2
70.185 Campanula/Jasione Pug <i>Eupithecia denotata</i>	VU	D2
70.188 Bordered Pug <i>Eupithecia succenturiata</i>	VU	A2c
70.266 Dotted Carpet <i>Alcis jubata</i>	VU	D2
72.010 Black Arches <i>Lymantria monacha</i>	VU	D2
72.035 Rosy Footman <i>Miltochrista miniata</i>	VU	D2
73.042 Light Knot Grass <i>Acronicta menyanthidis</i>	VU	A2c, A3c
73.110 Saxon <i>Hyppa rectilinea</i>	VU	D2
73.139 Twin-spotted Wainscot <i>Lenisa geminipuncta</i>	VU	D2
73.151 Webb's Wainscot <i>Globia sparganii</i>	VU	B2a,b(iii,iv)
73.220 Minor Shoulder-knot <i>Brachylochia viminalis</i>	VU	A2c
73.230 Feathered Brindle <i>Aporophyla australis</i>	VU	B2a,b(iii), D2
73.236 Black-banded <i>Polymixis xanthomista</i>	VU	D2
73.246 Lead-coloured Drab <i>Orthosia populeti</i>	VU	D2
73.248 Northern Drab <i>Orthosia opima</i>	VU	D2
73.339 Dotted Rustic <i>Rhyacia simulans</i>	VU	D2

**Table 1 (cont):** Red list of Irish macro-moths. Category abbreviations RE = Regionally Extinct, CR = Critically Endangered, EN = Endangered, VU = Vulnerable, NT = Near Threatened, DD = Data Deficient.

Species	Assessment	Criteria
65.011 Poplar Lutestring <i>Tethea</i> or	NT	
66.005 Small Eggar <i>Eriogaster lanestris</i>	NT	
70.059 Yellow Shell <i>Camptogramma bilineata</i>	NT	
70.072 Grey Mountain Carpet <i>Entephria caesiata</i>	NT	
70.123 Tissue <i>Triphosa dubitata</i>	NT	
70.138 Sandy Carpet <i>Perizoma flavofasciata</i>	NT	
71.028 Small Chocolate-tip <i>Clostera pigra</i>	NT	
72.016 Dark Tussock <i>Dicallomera fascelina</i>	NT	
72.025 Wood Tiger <i>Parasemia plantaginis</i>	NT	
72.047 Hoary Footman <i>Eilema caniola</i>	NT	
72.067 Small Purple-barred <i>Phytometra viridaria</i>	NT	
73.033 Figure of Eight <i>Diloba caeruleocephala</i>	NT	
73.064 Mouse Moth <i>Amphipyra tragopoginis</i>	NT	
73.065 Sprawler <i>Asteroscopus sphinx</i>	NT	
73.116 Burren Green <i>Calamia tridens</i>	NT	
73.164 Reddish Light Arches <i>Apamea sublustris</i>	NT	
73.266 Dog's Tooth <i>Lacanobia suasa</i>	NT	
73.311 Coast Dart <i>Euxoa cursoria</i>	NT	
73.314 Garden Dart <i>Euxoa nigricans</i>	NT	
73.320 Heart & Club <i>Agrotis clavis</i>	NT	
71.006 Alder Kitten <i>Furcula bicuspis</i>	DD	
73.173 Marbled Minor <i>Oligia strigilis</i>	DD	
73.211 Angle-striped Sallow <i>Enargia paleacea</i>	DD	
73.363 Northern Dart <i>Xestia alpicola</i>	DD	

**Table 2:** Summary of evaluations and breakdown of main IUCN criteria.

Category	No. spp.	IUCN criteria					
		A1	A2	A3	B1	B2	D2
Critically Endangered	7		4			5	
Endangered	9		4	1	3	8	
Vulnerable	27	1	10	2		2	16



**Figure 3:** Percentage of the 501 assessed species of Irish macro-moth within each of the IUCN regional red list categories. Category abbreviations CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

## SPECIES NOTES

This section gives brief notes on all the red-listed species of Irish macro-moth as well as those which were assessed as Regionally Extinct, Near Threatened or Data Deficient. The accounts draw heavily on Waring *et al.* (2003) (all species) and Bond and Gittings (2008) (noctuids). They are aimed at providing summary biological and ecological data for each of the threatened species and to aid understanding of the species requirements. The notes summarise the information and knowledge on each species that was available up to the end of 31 December 2012. The species are listed in checklist order following Agassiz *et al.* (2015). Appendix 2 includes a complete checklist of all the Irish macro-moths listed in Bond and O'Connor (2012). The accounts are all accompanied by at least one distribution map showing the records for the assessed species in the appropriate time periods (pre-2000 and 2000-2012). The maps are not definitive and readers should consult the maps on the MothsIreland website and those available from the Northern Ireland recorder for the most up to date versions.



**Plate 2:** Manchester Treble-bar *Carsia sororiata* - photo: Michael O'Donnell, Co. Mayo.

52.002 Hornet Moth *Sesia apiformis***Regionally Extinct**

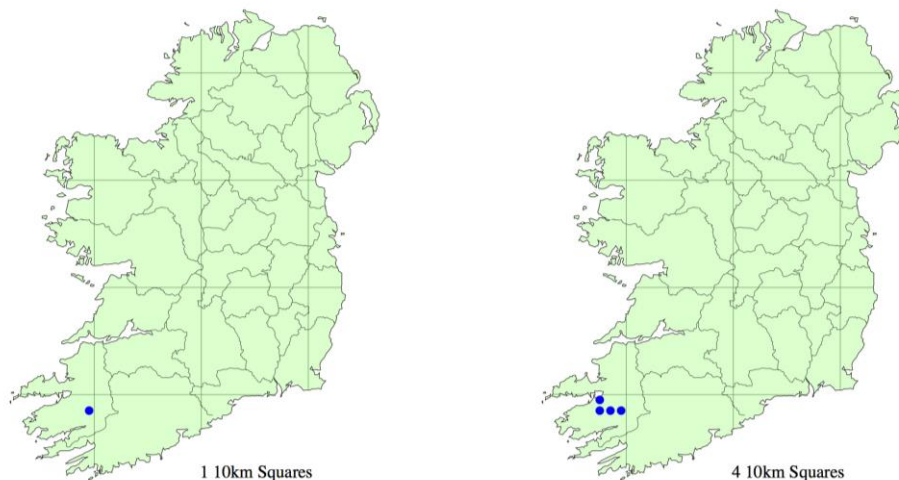
The Hornet Moth is one of the clearwings, which are a type of day-flying moth that mimic species of wasp and, in this case, one of the social wasps and hornets. This species was last seen in 1946 but nothing is known about the causes of its apparent extinction. Associated largely with poplars (Black *Populus nigra* and Aspen *P. tremula*), particularly with trees in open, sunny conditions. The larvae feed on tree tissue just below the bark. However, the adults do not feed. The single adult brood flies from mid-June to the end of July based on British data.



**Figure 4:** Distribution of Hornet Moth *Sesia apiformis*.

52.005 Welsh Clearwing *Synanthedon scoliaeformis***Vulnerable**

This day-flying clearwing is mimetic of a species of wasp. It is associated with Downy Birch *Betula pubescens* especially favouring large trees in open locations. The larvae feed just under the bark and take two years to grow to full size. The adults can be elusive and the species is best found by searching for empty pupal skins on the outside of host trees or by using specific pheromone lures (lures with female-mimicking chemicals). Adults fly in a single generation in June and early July. Welsh Clearwing is found in open birch woodland and woodland edge, small copses or individual trees with an open aspect in parts of the south-west and is considered Vulnerable due to restricted range.



**Figure 5:** Distribution of Welsh Clearwing *Synanthedon scoliaeformis* pre-2000 (left) and 2000-2012 (right).



52.016 Thrift Clearwing *Pyropteron muscaeformis*

**Critically Endangered**

A day-flying species of clearwing, which can be attracted using pheromone lures. The larvae feed on the roots and stems of Thrift *Armeria maritima*, and this feeding damage causes the foliage to turn brown. The species is found on rocky shores where the foodplant is well established, although there is some evidence that it prefers more stressed plants in the splash-zone. The adult flight period is early June to late July in Britain. Thrift Clearwing is recorded from rocky coast from Dublin and Clare southwards. Most records date from before 1970. The only records since 2000 are from west Cork. The reasons for this apparent decline are not understood as potential habitat remains commonplace.

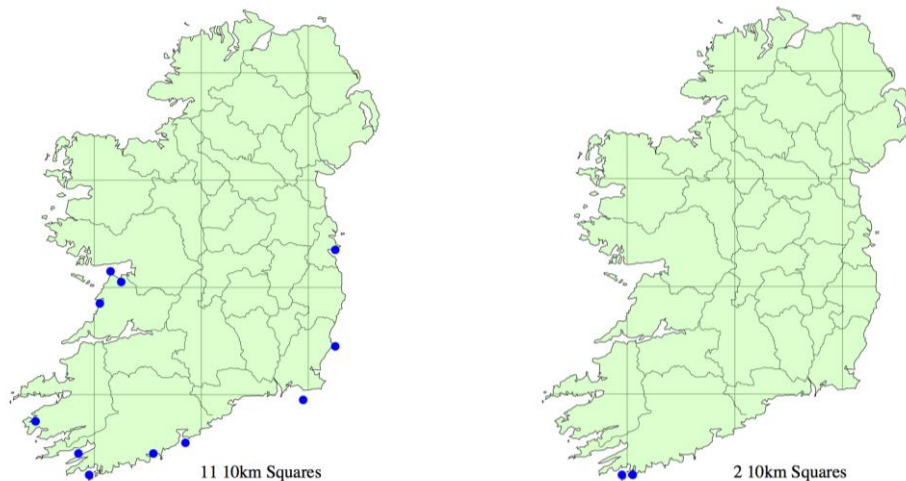


Figure 6: Distribution of Thrift Clearwing *Pyropteron muscaeformis* pre-2000 (left) and 2000-2012 (right).

54.002 Forester *Adscita statices*

**Endangered**

This declining moth is found in uncultivated damp grassland, fens, sea-cliffs and the margins of coastal wetlands. The larvae feed on Sheep's Sorrel *Rumex acetosella* and Common Sorrel *R. acetosa*. The day-flying adults feed on the nectar of many species of flowering plant and the flight period covers all of June and July. It has a wide distribution in Ireland although it is very local and there have been widespread losses throughout as habitats have been lost.

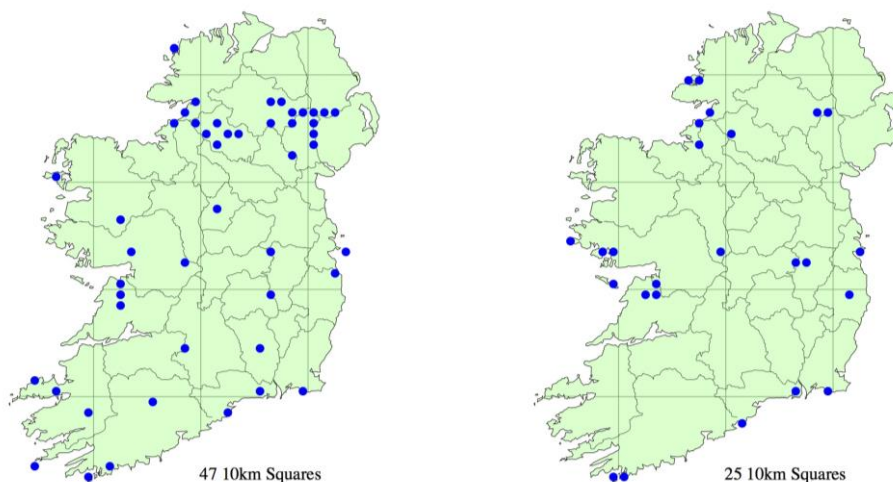
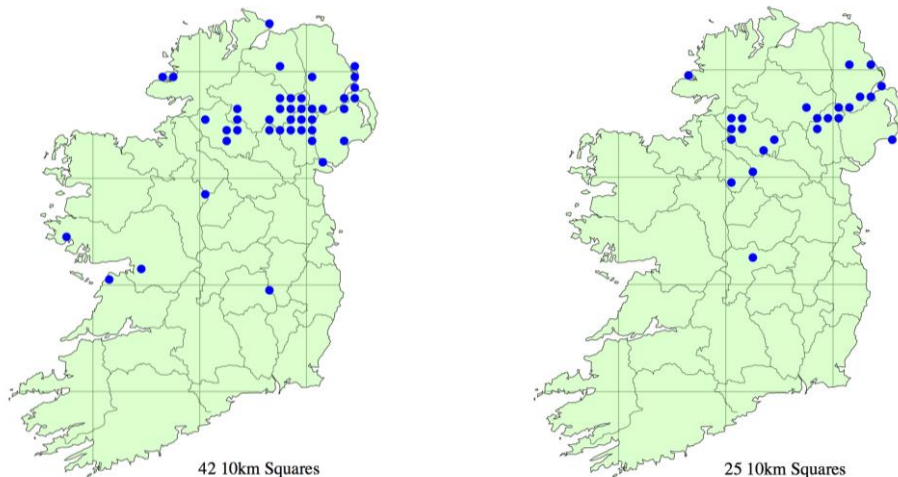


Figure 7: Distribution of Forester *Adscita statices* pre-2000 (left) and 2000-2012 (right).



54.009 Narrow-bordered Five-spot Burnet *Zygaena lonicerae***Vulnerable**

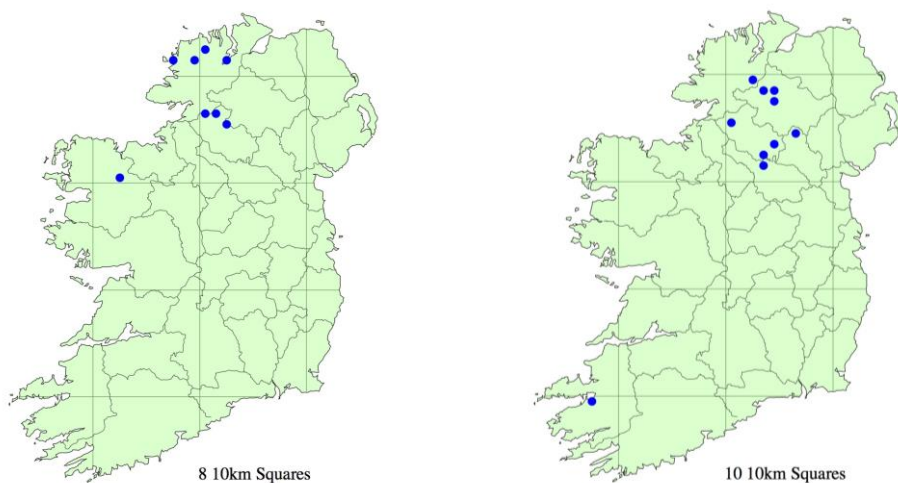
This is a day-flying species of unimproved, flower-rich, lowland grassland. The larvae can develop on a variety of herbs including trefoils *Lotus* spp. and clovers *Trifolium* spp. Adults are on the wing in June and July. The distribution is markedly northern and most occupied hectads are in southern counties of Northern Ireland with just a scattering of occupied sites in the Irish midlands as far south as Cos. Tipperary and Laois. The species may however have been overlooked or not distinguished from the more common Six-spot Burnet *Z. filipendulae*. Some new colonies have appeared on abandoned sites but these gains have not balanced out extensive losses of colonies since the 1970s and hence the species was assessed as Vulnerable.



**Figure 8:** Distribution of Narrow-bordered Five-spot Burnet *Zygaena lonicerae* pre-2000 (left) and 2000-2012 (right).

65.011 Poplar Lutestring *Tethea or***Near Threatened**

This species feeds on Aspen *Populus tremula* and possibly other poplar *Populus* species. It is found in natural woodland with Aspen but also in woods with planted poplars. Adults come to light and also to sugar attractants, a technique rarely used in Ireland. The flight period is June and July. The Irish range is disjunct and strongly western with most recent records from Cos. Tyrone, Kerry and Fermanagh. The species appears to have been lost from sites in the north-west hence the assessment as Near Threatened.

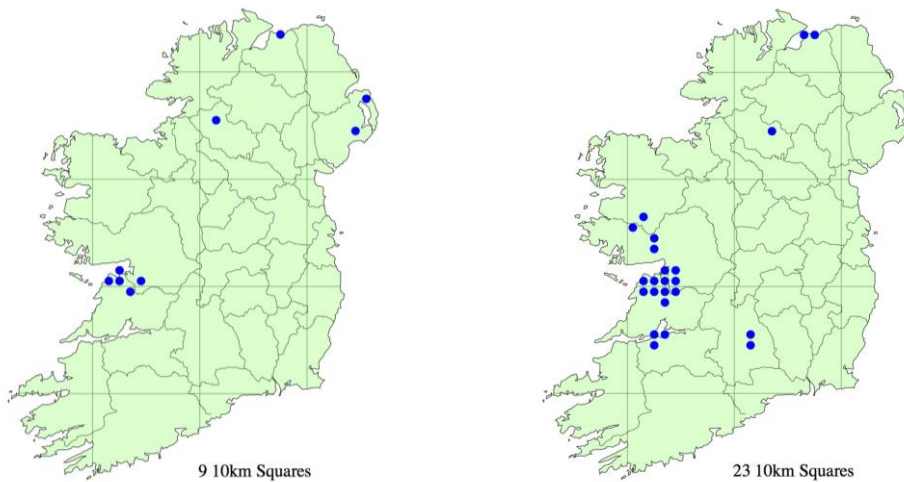


**Figure 9:** Distribution of Poplar Lutestring *Tethea or* pre-2000 (left) and 2000-2012 (right).

66.005 Small Eggar *Eriogaster lanestris*

**Near Threatened**

The adults emerge in February-March but are rarely seen as they are infrequently attracted to light. The species is most easily recorded at the caterpillar stage as these live communally in a dense, white, tent-like web. This is present in spring and summer and is easily visible on the outer branches of Hawthorn *Crataegus monogyna* or Blackthorn *Prunus spinosa*. The larval spinning and pupae are very easily removed by hedge trimming and this, combined with low dispersal by adults, means that the species can easily be lost, hence the apportioned threat category.

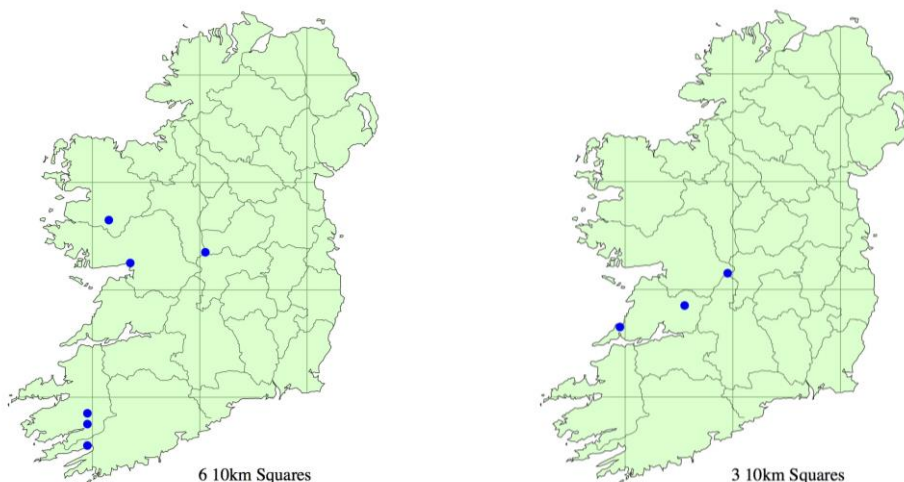


**Figure 10:** Distribution of Small Eggar *Eriogaster lanestris* pre-2000 (left) and 2000-2012 (right).

70.002 Purple-bordered Gold *Idaea muricata*

**Endangered**

This is a species of wetland habitats such as fens, heaths and wet grasslands. Marsh Cinquefoil *Potentilla palustris* is a confirmed foodplant but it may use other species. The adults are day-flying but will also come to light. They fly in a single generation in late June/July. This has never been a common species and is less so than previously with losses in the SW especially.



**Figure 11:** Distribution of Purple-bordered Gold *Idaea muricata* pre-2000 (left) and 2000-2012 (right).

70.026 Smoky Wave *Scopula ternata*

**Vulnerable**

This species was recorded in Co. Kerry in the 19<sup>th</sup> century but not since. The only other record was in Co. Antrim in 1997. The adults, which can be attracted to light, fly in June and July and the caterpillars are found between August and the following late spring. The foodplants are Heather *Calluna vulgaris* and Bilberry *Vaccinium myrtillus*. This was assessed as Vulnerable because of the limited range and its occurrence was unlikely to have been as an immigrant.

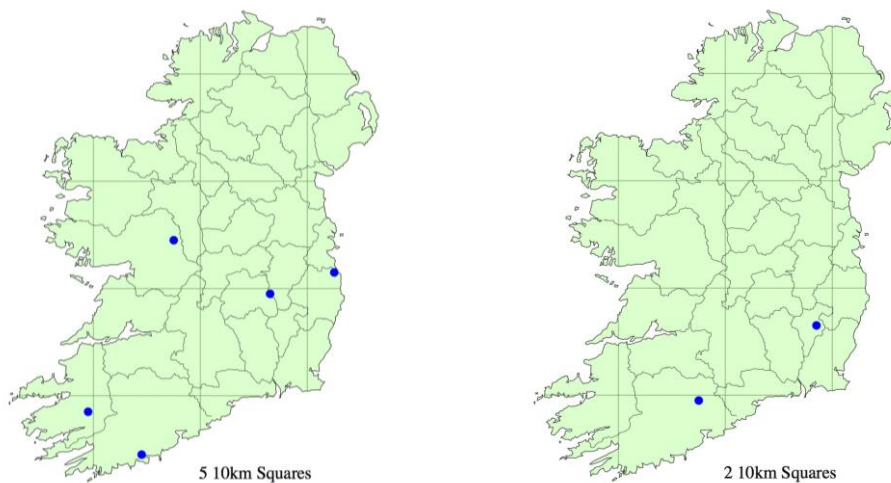


**Figure 12:** Distribution of Smoky Wave *Scopula ternata* pre-2000.

70.036 Maiden's Blush *Cyclophora punctaria*

**Endangered**

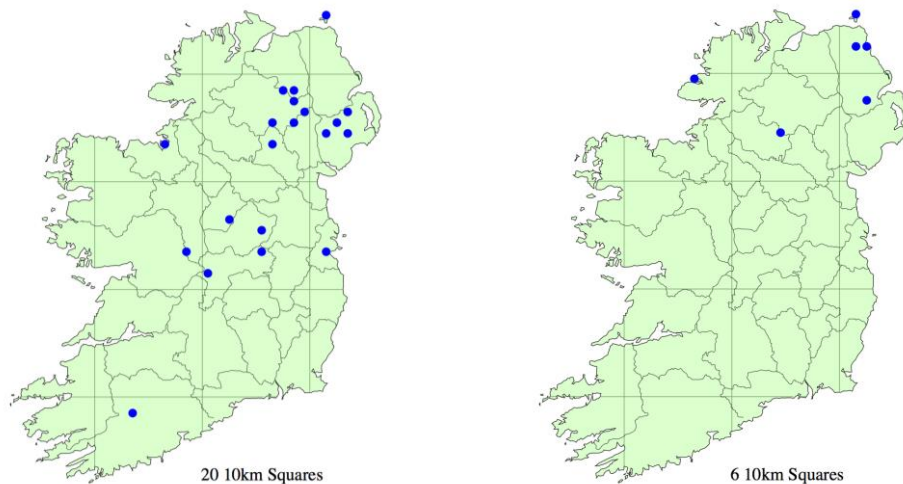
There are two generations of Maiden's Blush, the first in spring/early summer and a second in late summer/early autumn. The adults are attracted to light but may also be disturbed from vegetation during the day. The habitat is oak woodland and the larvae feed on the foliage of oaks *Quercus* spp. There have been scattered records across the southern half of the country. The species has never been common and the only post-2000 records come from Cos. Carlow and Cork. The loss of suitable woodland is considered the main reason for the decline.



**Figure 13:** Distribution of Maiden's Blush *Cyclophora punctaria* pre-2000 (left) and 2000-2012 (right).

70.048 Red Carpet *Xanthorhoe decoloraria***Endangered**

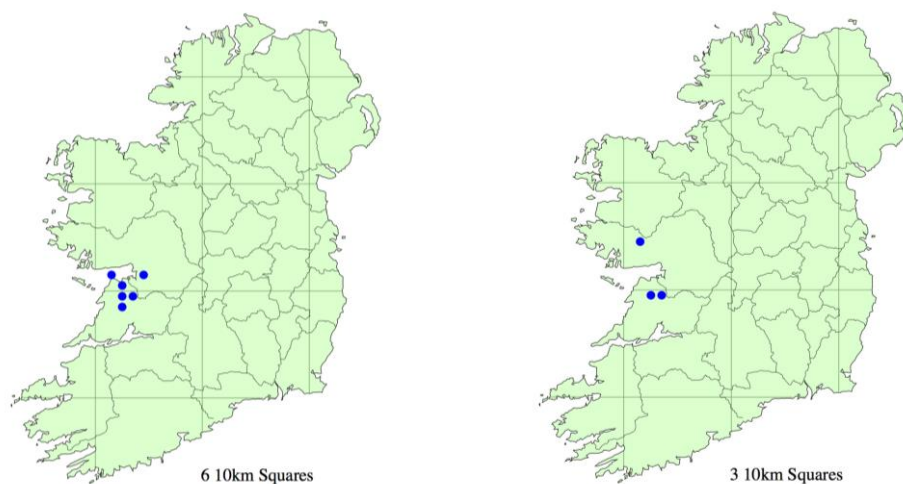
This is a northern species of mainly upland grassland and moorland with its main foodplants which are species of lady's-mantle *Alchemilla* spp. Adults can be seen during the day but also come to light. The flight season is July and August. The species has been lost from much of its Irish range and the only modern records are from uplands in Cos. Antrim, Donegal and Fermanagh. Habitat loss is considered one of the main causes for this decline but it may also be impacted by climate change.



**Figure 14:** Distribution of Red Carpet *Xanthorhoe decoloraria* pre-2000 (left) and 2000-2012 (right).

70.056 Royal Mantle *Catarhoe cuculata***Vulnerable**

This is confined to the Burren and the Burren-like habitat on the west side of Lough Corrib, Co. Galway. Adults fly in June and July and are attracted to light. The habitat is calcareous grassland containing the larval foodplants, which are species of bedstraws *Galium* spp. The species is categorised as Vulnerable since it is highly localised to limestone habitat in Clare and Galway and shows signs of a contraction in range.



**Figure 15:** Distribution of Royal Mantle *Catarhoe cuculata* pre-2000 (left) and 2000-2012 (right).



70.059 Yellow Shell *Camptogramma bilineata*

**Near Threatened**

This remains a widespread species around the coast and in unimproved grasslands in Ireland but it has been lost from many inland sites, presumably because of agricultural change and so the species has been assessed as Near Threatened. Adults are frequently seen during the day but they also appear in light traps. The flight period covers June, July and August. The habitat is rough, unimproved grassland where the larvae feed on a number of herbaceous perennials. Some populations in western Ireland are dark forms and given subspecific status including *isolata* on the Blasket Islands, Co. Kerry.

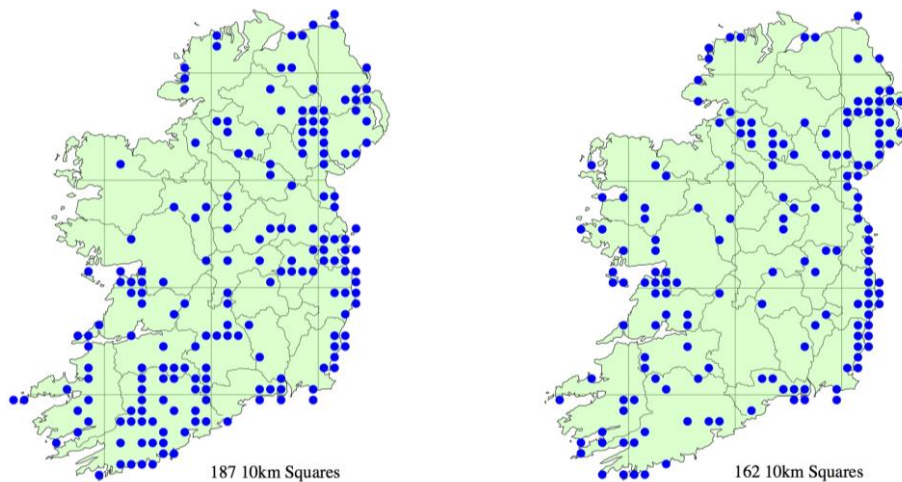


Figure 16: Distribution of Yellow Shell *Camptogramma bilineata* pre-2000 (left) and 2000-2012 (right).

70.060 Small Argent & Sable *Epirrhoe tristata*

**Vulnerable**

This moth is found in the Burren and scattered upland localities with its foodplant Heath Bedstraw *Galium saxatile*. There is evidence of losses in many areas including Co. Kerry and in Northern Ireland. Adults are largely day-flying and have been recorded between May and late August in two broods.

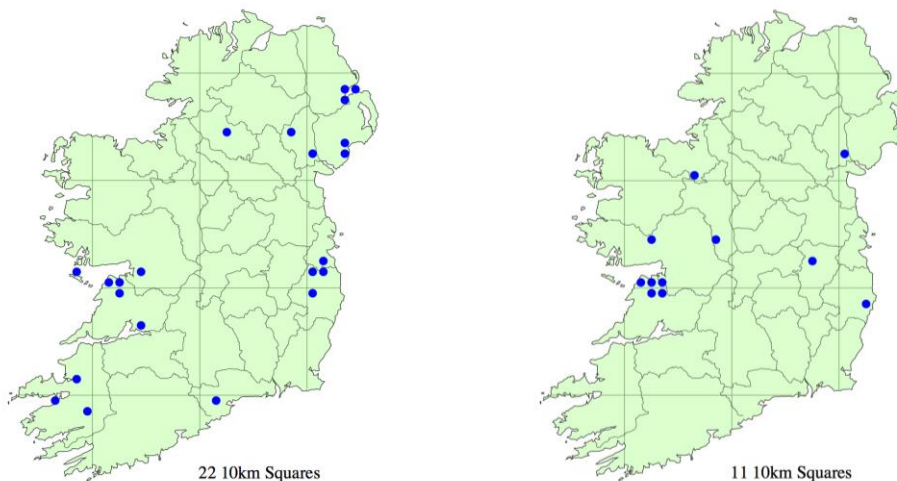
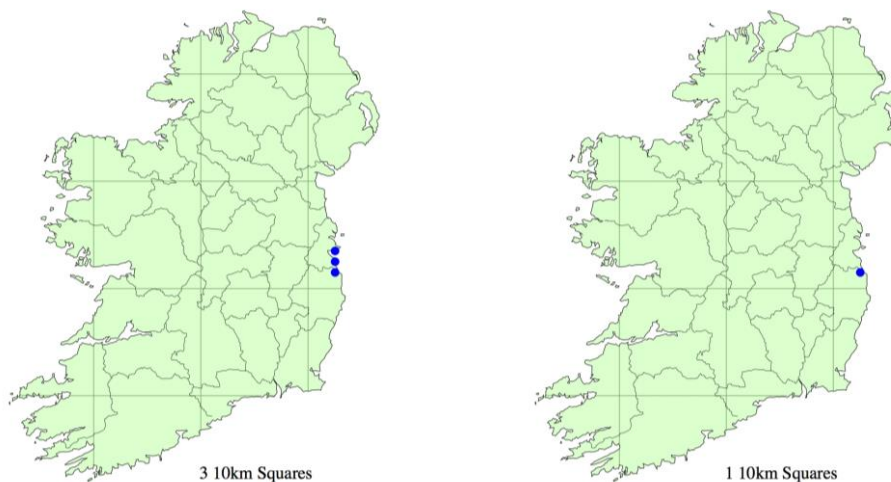


Figure 17: Distribution of Small Argent & Sable *Epirrhoe tristata* pre-2000 (left) and 2000-2012 (right).

70.070 Mallow *Larentia clavaria***Critically Endangered**

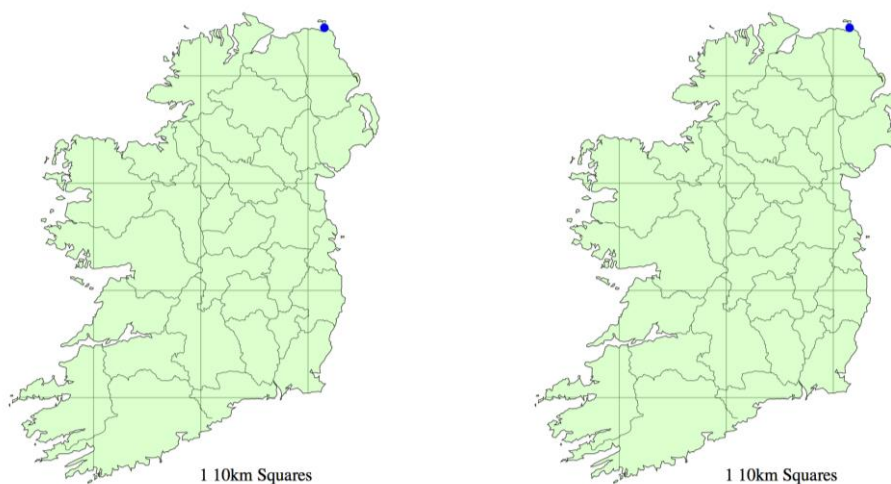
This autumn-flying species (September and October) has only been recorded on the coasts of Cos. Dublin and Wicklow. It is found on rough, uncultivated areas with its foodplant Common Mallow *Malva sylvestris*. The loss of uncultivated habitat on coastal areas is considered the reason for its assessed status.



**Figure 18:** Distribution of Mallow *Larentia clavaria* pre-2000 (left) and 2000-2012 (right).

70.071 Yellow-ringed Carpet *Entephria flavicinctata***Critically Endangered**

This has always been a rare species in Ireland with records from only two locations. All the modern records are from the Fair Head and Murlough Bay area of Co. Antrim. In Ireland, larvae feed on saxifrages (notably Mossy *Saxifraga hypnoides* and Yellow *S. aizoides*) and potentially stonecrops *Sedum* spp. The habitat is flushed grassland, heaths and rocky places on base-rich rock. The adults come to light and all Irish records have been in August. In Britain there may be two generations between May and August.

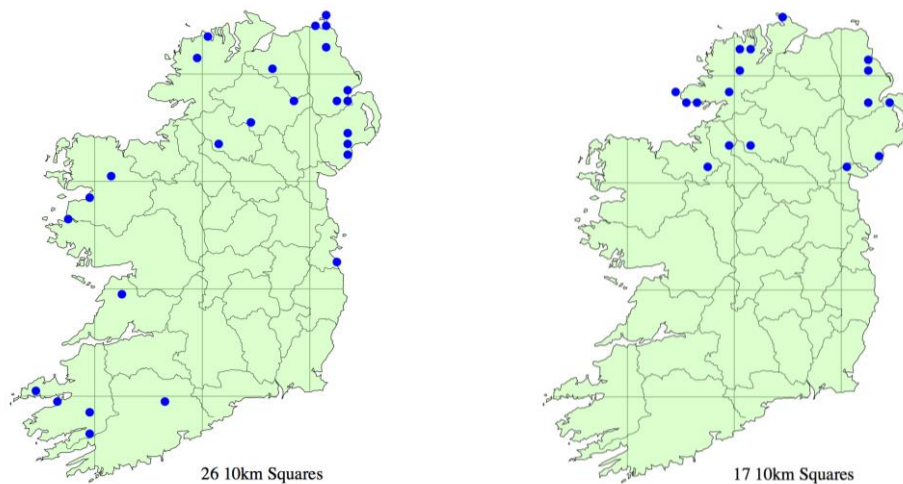


**Figure 19:** Distribution of Yellow-ringed Carpet *Entephria flavicinctata* pre-2000 (left) and 2000-2012 (right).

70.072 Grey Mountain Carpet *Entephria caesiata*

**Near Threatened**

As its name suggests this is found in upland areas on heaths and moors. The foodplants are Heather *Calluna vulgaris* and Bilberry *Vaccinium myrtillus*. The flight period is June to early September. Adults are often encountered day-flying on warm sunny days but they also fly at dusk and are attracted to light. The species is widespread in northern regions but it appears to have disappeared from formerly occupied areas between Cos. Kerry and Mayo. The loss of good quality upland heath through overgrazing and land use change is considered the most likely cause of the decline.

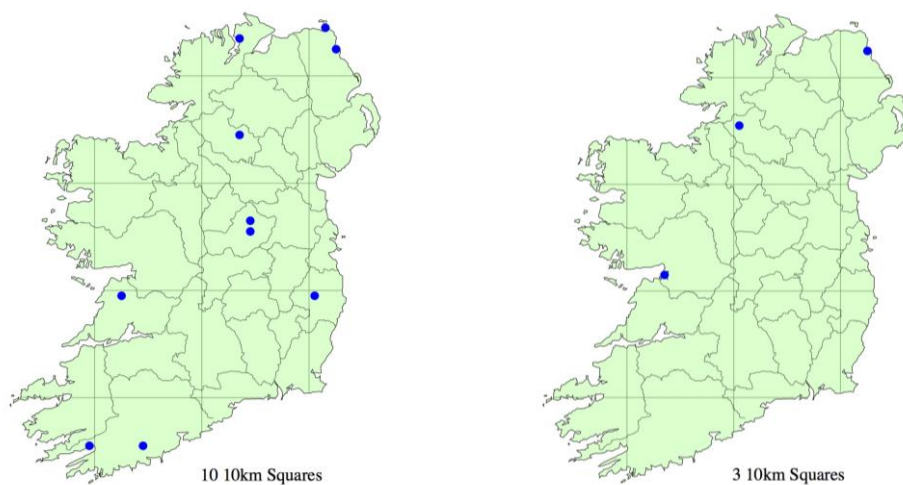


**Figure 20:** Distribution of Grey Mountain Carpet *Entephria caesiata* pre-2000 (left) and 2000-2012 (right).

70.099 Beech-green Carpet *Colostygia olivata*

**Endangered**

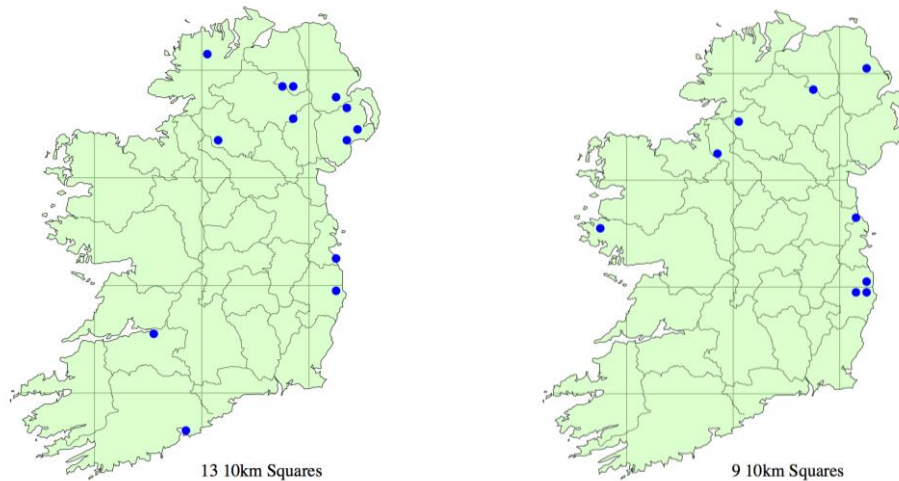
Bedstraws are the foodplants of this moth and these include Hedge Bedstraw *Galium mollugo*, Lady's Bedstraw *G. verum* and Heath Bedstraw *G. saxatile*. It is found in woodland and heathland edge. The adults are on the wing in a single generation in July and August. They come to light and fly at dusk. This species has always been local in Ireland and it appears to have disappeared from many counties. The only recent records are from Cos. Clare, Fermanagh and especially Antrim.



**Figure 21:** Distribution of Beech-green Carpet *Colostygia olivata* pre-2000 (left) and 2000-2012 (right).

70.110 Small Autumnal Moth *Epirrita filigrammaria***Vulnerable**

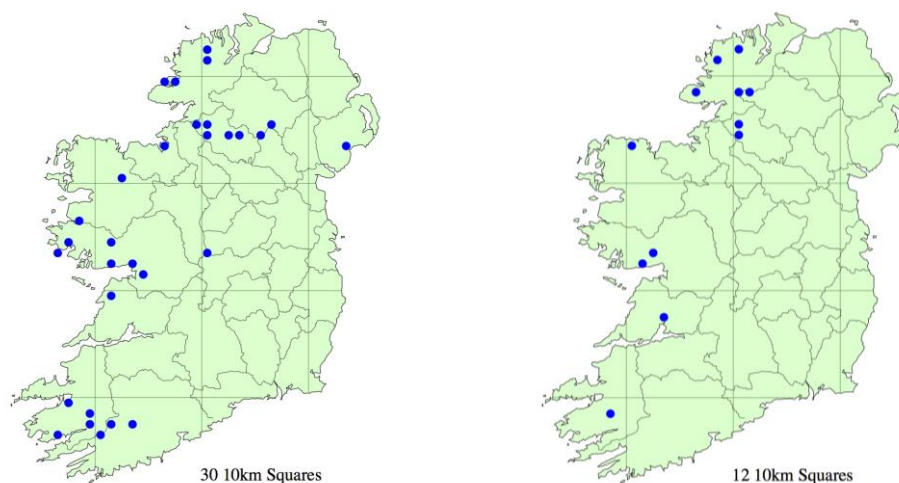
Adults fly in a single generation in late summer to late autumn. It occurs in upland areas where the larvae use Heather *Calluna vulgaris* and Bilberry *Vaccinium myrtillus*. The distribution is very local and now mainly limited to eastern and northern counties. The decline that has been observed is considered linked to decline in habitat quality and extent of upland heaths.



**Figure 22:** Distribution of Small Autumnal Moth *Epirrita filigrammaria* pre-2000 (left) and 2000-2012 (right).

70.120 Argent & Sable *Rheumaptera hastata***Vulnerable**

This is a day-flying moth that flies in a single generation in May, June and July. It occurs in heaths, moorland and open woodland. The known foodplant on Irish sites is Bog Myrtle *Myrica gale*, but species of birch *Betula* spp. are alternative hosts in Britain. In Ireland it is most frequently found in large stands of Bog Myrtle. There is evidence of a decline across the south and west. Former losses in the north may not have been so severe but this is partly masked by the discovery of new sites and recolonization of formerly abandoned sites in targeted surveys. It is more easily located in the larval stage than as an adult and this may bias the current distribution maps.

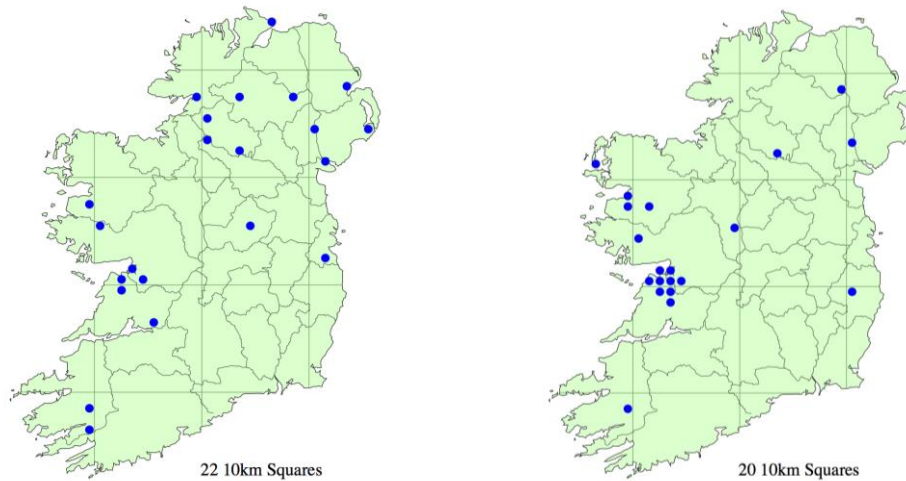


**Figure 23:** Distribution of Argent & Sable *Rheumaptera hastata* pre-2000 (left) and 2000-2012 (right).



70.123 Tissue *Triphosa dubitata***Near Threatened**

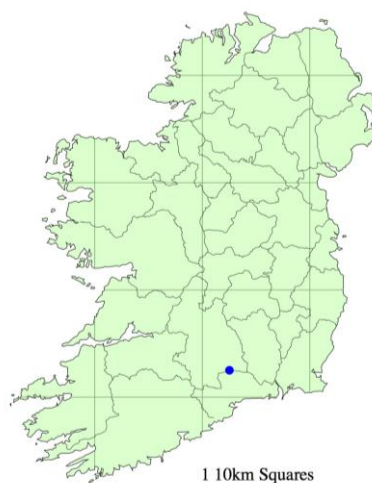
The larval foodplant of the Tissue is Buckthorn *Rhamnus cathartica* and it can be seen in the same habitat as the Irish Annulet *Gnophos dumetata* (EN). The adults have an extended flight period from August to May, which includes a mid-winter hibernation. It occurs widely in the Burren and Corrib/Mask system where it remains common and widespread but many records in northern areas are old. It has the ability to appear many miles from the foodplant suggesting it has a strong dispersal mechanism.



**Figure 24:** Distribution of Tissue *Triphosa dubitata* pre-2000 (left) and 2000-2012 (right).

70.124 Barberry Carpet *Pareulype berberata***Regionally Extinct**

The foodplant of this species is Barberry *Berberis vulgaris*, which has a very scattered distribution in Ireland. Barberry is a host of Wheat Rust *Puccinia graminis* and so was widely removed from hedges in the past to control this disease. This caused a huge decline of the moth in Britain but whether this caused extinction in Ireland is unknown. It was last recorded circa 1946 near Clonmel Co Tipperary. This has been mapped in grid square S22 although the precise locality is not known. In Britain it is double-brooded between May and August. The larvae are mainly found on mature Barberry bushes in hedges and edges of woods that are trimmed in autumn. It has the ability to utilise exotic species of Barberry as the foodplant.



**Figure 25:** Distribution of Barberry Carpet *Pareulype berberata* pre-2000.

70.125 Slender-striped Rufous *Coenocalpe lapidata*

**Regionally Extinct**

A day-flying moth of upland areas. The foodplant is thought to be Meadow Buttercup *Ranunculus acris* or Creeping Buttercup *R. repens* and it is found on the sides of streams and flushes in bogs and heaths where there is apparently some mineral rich influence. The last Irish record was from Co. Fermanagh in 1914. Attempts to relocate this species in Fermanagh and Antrim have proved fruitless but habitat is considered present and the reasons for its extinction are unknown. Adults can easily be flushed from the habitat by day but the males are also attracted to light. The flight season is late in September and October in a single generation.

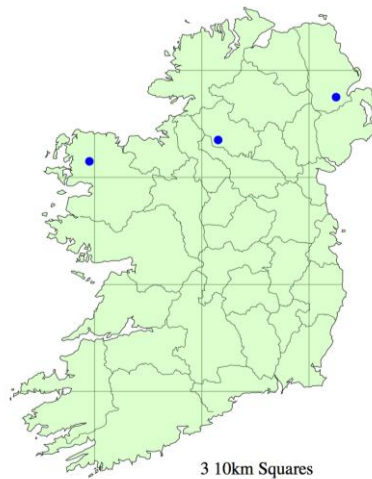


Figure 26: Distribution of Slender-striped Rufous *Coenocalpe lapidata* pre-2000.

70.130 Chimney Sweeper *Odezia atrata*

**Vulnerable**

The day-flying Chimney Sweeper is found in calcareous and damp grassland often along river valleys. The foodplant is Pignut *Conopodium majus* and the larvae feed on the flowers and seed heads. The distribution is mainly northern and western and a general decline has been observed even in core areas such as the Burren and Co. Tyrone. The adults fly in June and July often in dull weather.

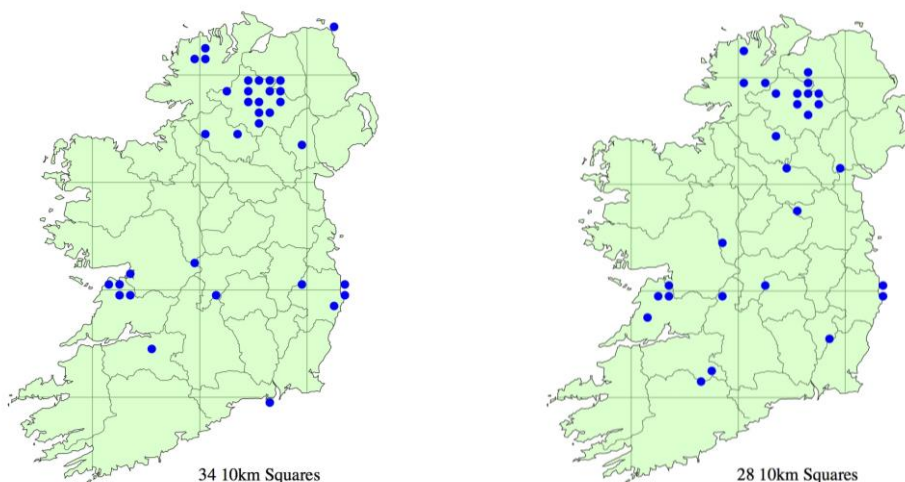


Figure 27: Distribution of Chimney Sweeper *Odezia atrata* pre-2000 (left) and 2000-2012 (right).

70.135 Heath Rivulet *Perizoma minorata*

**Vulnerable**

Confined to the Burren where it is found on calcareous grassland with its foodplant eyebright *Euphrasia* spp. There is evidence of a retraction of range even in the Burren and it has been assessed as Vulnerable. The adults are day-flying as well as attracted to light and are on the wing in August.

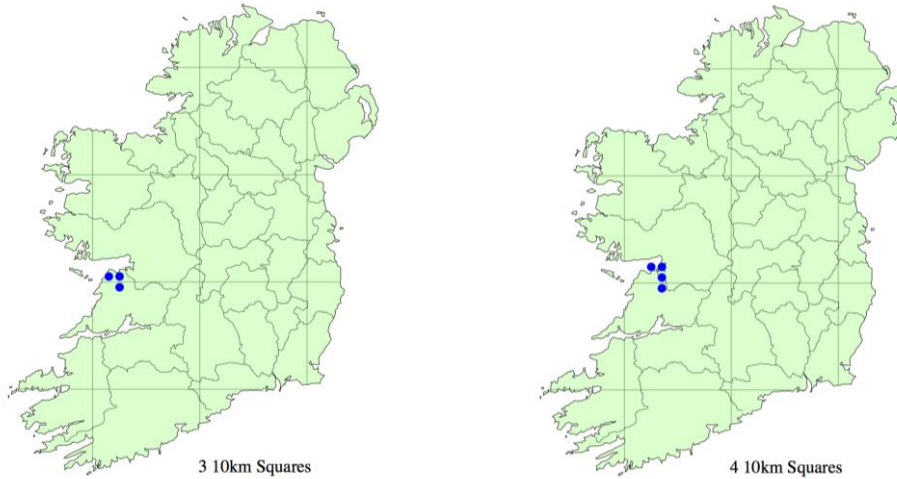


Figure 28: Distribution of Heath Rivulet *Perizoma minorata* pre-2000 (left) and 2000-2012 (right).

70.138 Sandy Carpet *Perizoma flavofasciata*

**Near Threatened**

The adults of the Sandy Carpet are on the wing in June and July. They fly around dusk but only sparingly come to light. The larvae feed on flowers and seedpods of campions *Silene* spp. especially Red Champion *S. dioica*. In Ireland this is largely a coastal species. It has shown a decline in all areas.

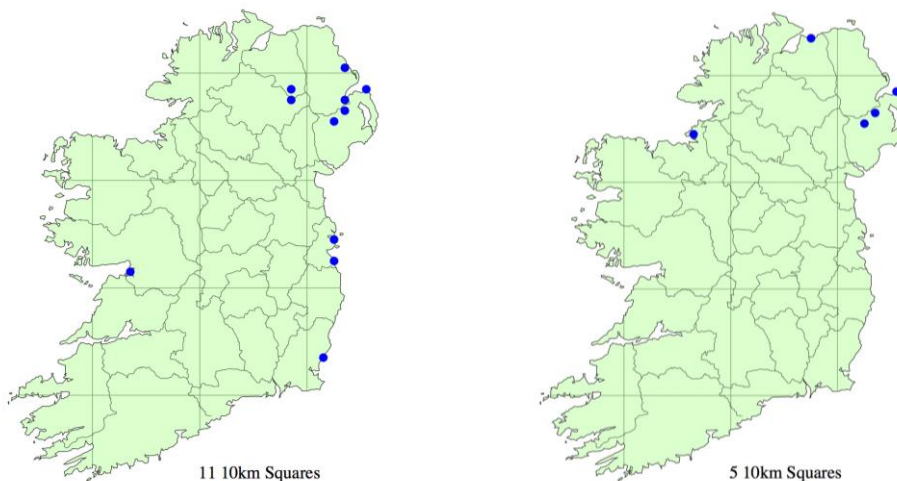


Figure 29: Distribution of Sandy Carpet *Perizoma flavofasciata* pre-2000 (left) and 2000-2012 (right).

70.154 Marsh Pug *Eupithecia pygmaeata*

**Vulnerable**

This pug is found in wetlands but also sand dunes and brownfield sites. Its foodplant is Field Mouse-ear *Cerastium fontanum*. The species is widespread but there has been a decrease in occupied hectads. The flight season is protracted from early May to the end of August.

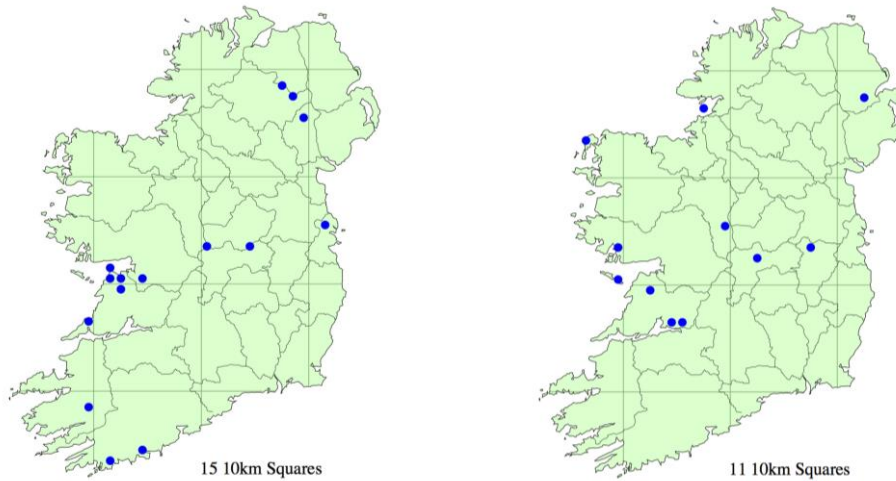


Figure 30: Distribution of Marsh Pug *Eupithecia pygmaeata* pre-2000 (left) and 2000-2012 (right).

70.166 Plain Pug *Eupithecia simpliciatata*

**Vulnerable**

This pug is found in coastal areas and formerly inland at Lough Neagh. It inhabits sandy places with goosefoots and oraches *Atriplex* spp. The flight period is mid-June to the end of August in a single generation. Adults are attracted to light. The species has been categorised as Vulnerable as it is not widely recorded and its habitat is vulnerable to loss or damage.

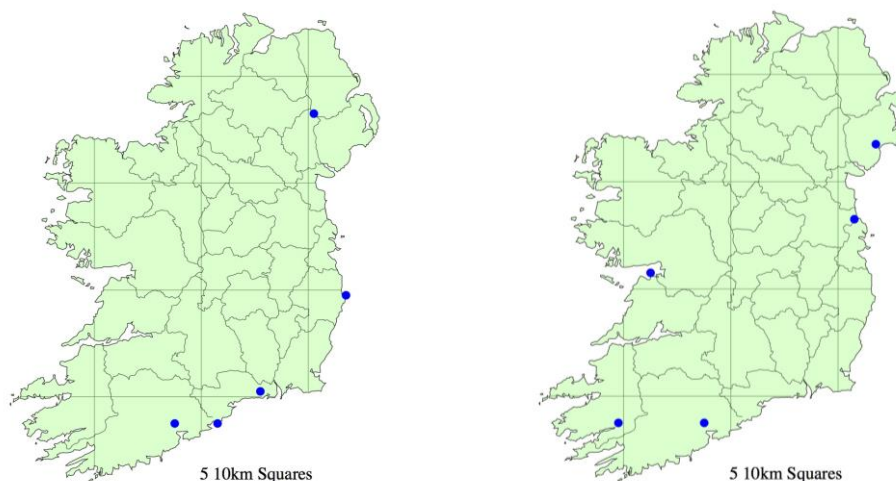


Figure 31: Distribution of Plain Pug *Eupithecia simpliciatata* pre-2000 (left) and 2000-2012 (right).



70.176 Freyer's/Mere's Pug *Eupithecia intricata***Vulnerable**

This species feeds on Juniper *Juniperus communis* and cultivated conifers. The species is variable in appearance with three named subspecies in Britain and Ireland. Two of these subspecies have been reported in Ireland—Mere's Pug ssp. *hibernica*, which is an endemic Irish subspecies found on native Juniper in the Burren, and Freyer's Pug, ssp. *arceuthata* a subspecies found on cultivated conifers that has been reported in Belfast. There is a single annual generation in May and June. The adults are attracted to light.

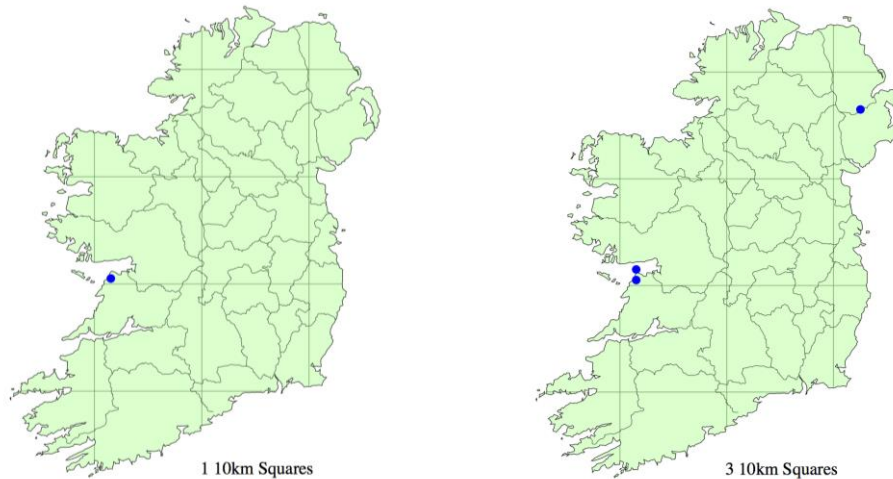


Figure 32: Distribution of Freyer's/Mere's Pug *Eupithecia intricata* pre-2000 (left) and 2000-2012 (right).

70.185 Campanula/Jasione Pug *Eupithecia denotata***Vulnerable**

Campanula Pug is represented in Ireland by the subspecies *jasioneata*. This moth occurs on non-calcareous rocky coasts and heaths with its foodplant Sheep's-bit *Jasione montana*. The larvae feed on the seed heads. The species is confined to western coasts but appears to have disappeared from Cos. Cork, Galway and Mayo and all recent records are from the Dingle Peninsula in Co. Kerry. The adults come to light in small numbers and the flight period is in a single generation in July.

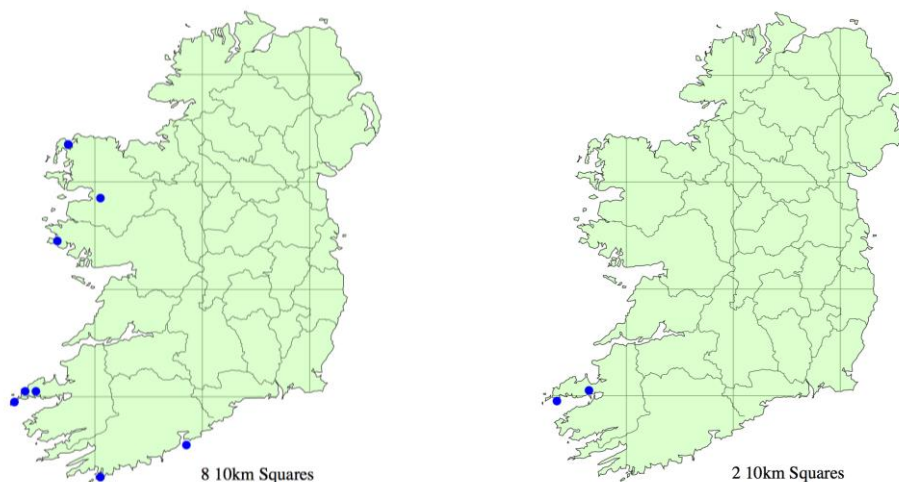
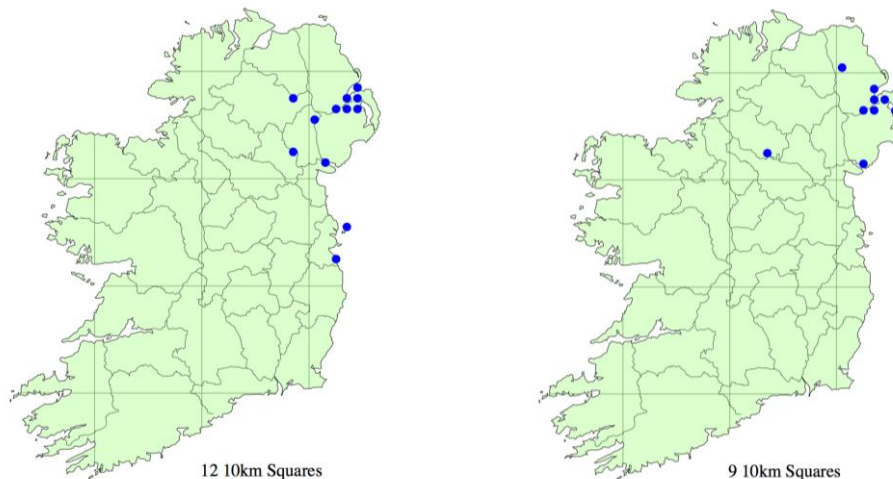


Figure 33: Distribution of Campanula/Jasione Pug *Eupithecia denotata* pre-2000 (left) and 2000-2012 (right).

70.188 Bordered Pug *Eupithecia succenturiata***Vulnerable**

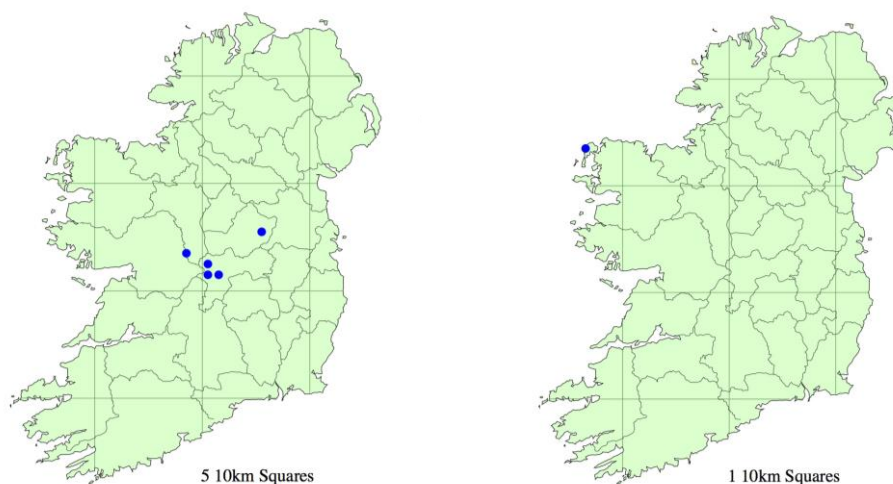
The larval foodplant is Mugwort *Artemisia vulgaris* and the moth is found in disturbed sites. Adults are attracted to light and have been recorded in June, July and August peaking at the end of July/beginning of August. It is recorded mainly from Northern Ireland especially around Belfast but extending to Cos. Dublin and Fermanagh.



**Figure 34:** Distribution of Bordered Pug *Eupithecia succenturiata* pre-2000 (left) and 2000-2012 (right).

70.191 Manchester Treble-bar *Carsia sororiata***Critically Endangered**

Manchester Treble-bar (Plate 2; page 11) is a very rare species in Ireland. It has never been common and it appears to have disappeared from central Ireland since the 1970s. The decline is considered to have been caused by the destruction of bogs through peat harvesting. The most recent records are from the Mullet, Co. Mayo. This is a species of raised and other bogs in Britain, where it feeds on Bilberry *Vaccinium myrtillus*, Cowberry *V. vitis-idaea* and Crowberry *Empetrum nigrum*. However, these species do not occur where it is currently found in Ireland and it is thought more likely to feed here on Common Heather *Calluna vulgaris*. The flight period is June to August. Adults come to light traps but also fly by day.

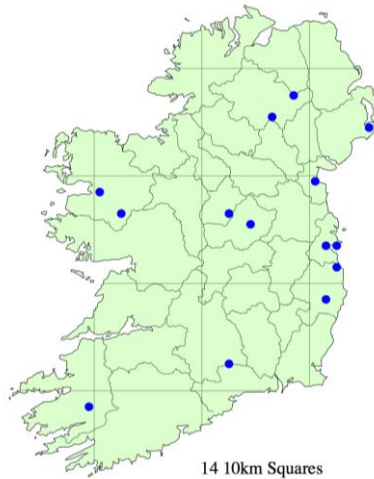


**Figure 35:** Distribution of Manchester Treble-bar *Carsia sororiata* pre-2000 (left) and 2000-2012 (right).

70.215 V-Moth *Macaria wauaria*

**Regionally Extinct**

Last recorded in 1959, this species has probably declined because of the reduction in the cultivation of the foodplants. The larvae feed on young shoots of Blackcurrant *Ribes nigrum*, Red Currant *R. rubrum* and Gooseberry *R. uva-crispa*. Adults come to light and fly in a single generation in July and August. In Britain, this species showed the greatest decline (99%) of all moths, as measured by the Rothamsted light-trap network between 1968 and 2007.



**Figure 36:** Distribution of V-Moth *Macaria wauaria* pre-2000.

70.236 September Thorn *Ennomos erosaria*

**Regionally Extinct**

This was last recorded in Ireland in 1940 and is considered Regionally Extinct. Recent reports of the species have not been substantiated. As its name indicates this has an autumn flight season in September and October. The larvae feed on the leaves of broad-leaved trees including oaks *Quercus* spp and birches *Betula* spp. in woods and parkland. The reasons for its extinction are not known.



**Figure 37:** Distribution of September Thorn *Ennomos erosaria* pre-2000.

70.266 Dotted Carpet *Alcis jubata*

**Vulnerable**

This is a woodland moth that feeds on species of bearded lichens *Usnea* spp. It has declined and is now apparently restricted to a few woodlands in Co Antrim. There have been no records from former sites in Cos. Cork, Down and Kerry since 2000.

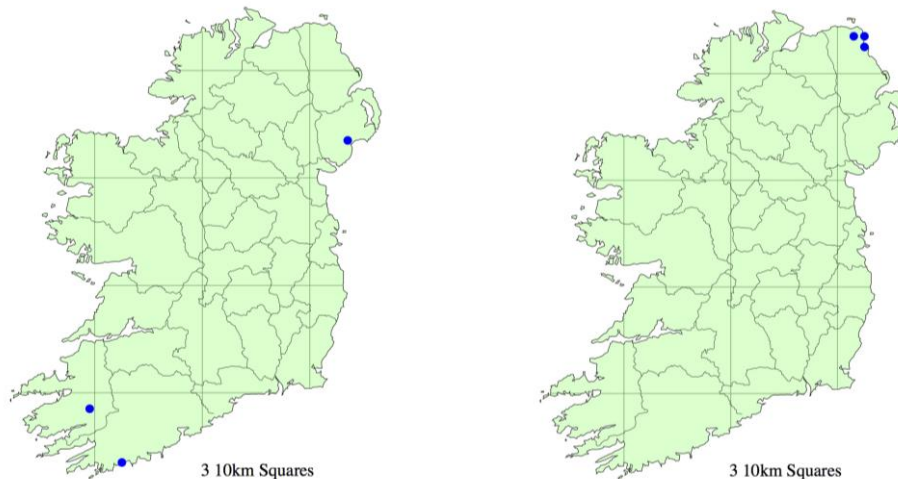


Figure 38: Distribution of Dotted Carpet *Alcis jubata* pre-2000 (left) and 2000-2012 (right).

70.286 Irish Annulet *Gnophos dumetata*

**Endangered**

Discovered in 1981, this large geometrid is confined to a small area of limestone pavement in the Burren, Co. Clare. The nearest populations are in France and Irish specimens have been described as an endemic subspecies *hibernica* Forder. The species is found in bare pavement with straggly bushes of Buckthorn *Rhamnus cathartica*. It is assessed as Endangered because of its very restricted range even within the Burren and it is reported to have been lost from some sites although there is little evidence to actually support this statement.

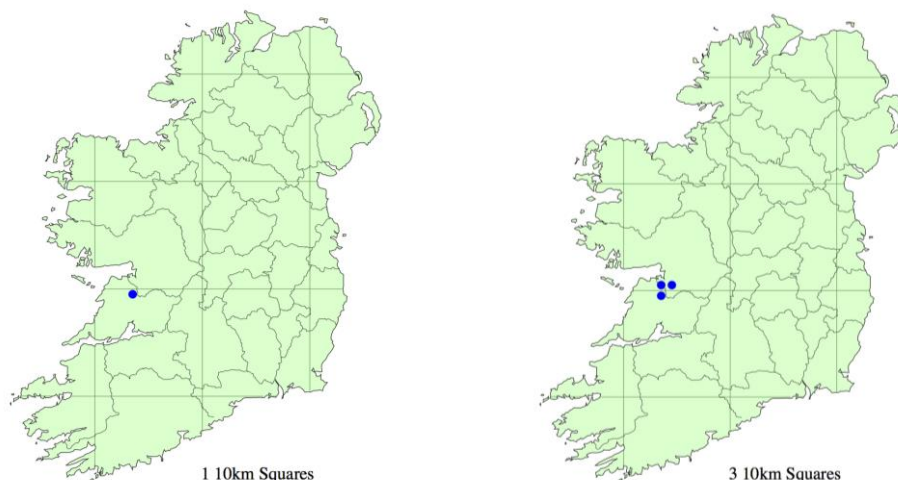


Figure 39: Distribution of Irish Annulet *Gnophos dumetata* pre-2000 (left) and 2000-2012 (right).



71.006 Alder Kitten *Furcula bicuspis*

**Data Deficient**

Alder *Alnus glutinosa* and birch *Betula* spp. are the foodplants of this species that is found in wooded areas with either tree species. The adults fly in a single early summer generation (May to July) and will come to light. The species is only known from a single record from Co. Fermanagh.

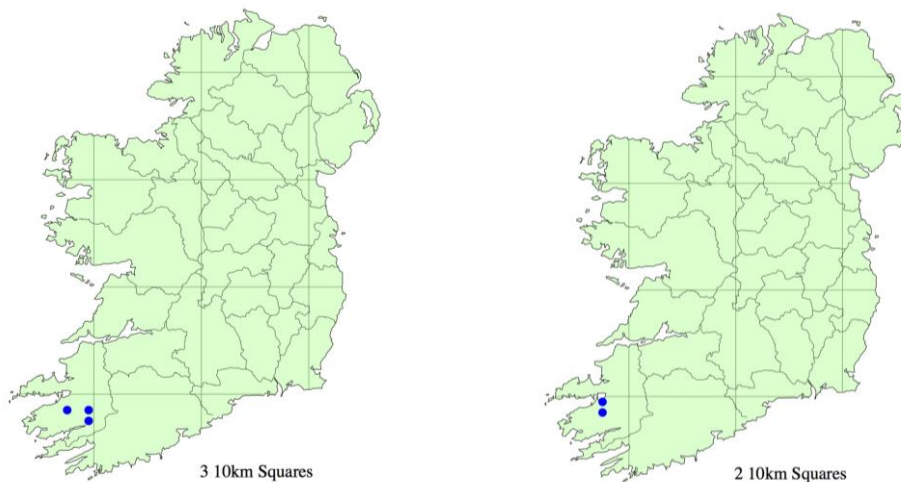


**Figure 40:** Distribution of Alder Kitten *Furcula bicuspis* 2000-2012.

71.019 White Prominent *Leucodonta bicoloria*

**Endangered**

This was rediscovered in Co. Kerry in 2008 following a gap of 70 years from the preceding record. The species has only ever been recorded from 4 hectads, although the precise locations of some of the historic records are poorly documented, but it has been lost from two, so the assessment was Endangered. The adults have a protracted flight period from May to August. The larvae feed on the foliage of birch *Betula* spp. probably utilising older trees and are highly dispersive and therefore hard to locate. Adults are found in mature woods. The losses from old sites are considered to be due to the removal of old trees and perhaps disturbance and loss of the litter or epiphytic ground layer as this is important for pupation.



**Figure 41:** Distribution of White Prominent *Leucodonta bicoloria* pre-2000 (left) and 2000-2012 (right).

71.028 Small Chocolate-tip *Clostera pigra*

**Near Threatened**

This is a species of heaths, fens, bogs and wetland habitats that have low-growing, shrubby, rough-leaved willows *Salix* spp. The Irish population appears to have a double-brooded phenology with adults present in May/June and July/August. Larvae are distinctive as they spin leaves together to form a daytime shelter. The adults come to light sparingly. There is evidence of losses from the north-east but also across the south. Whilst it remains locally widespread it is absent from the central boglands.

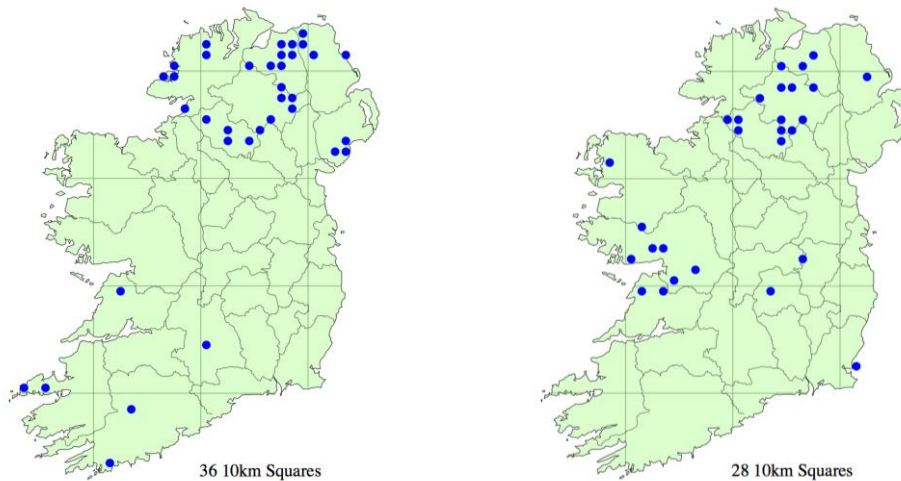


Figure 42: Distribution of Small Chocolate-tip *Clostera pigra* pre-2000 (left) and 2000-2012 (right).

72.010 Black Arches *Lymantria monacha*

**Vulnerable**

This distinctive moth (Plate 3, page 67) is only known from Cos. Cork, Sligo and Wexford but has not been seen in Co. Cork for many decades. The species is found in mature woodlands where the larvae feed on the foliage of oak *Quercus* spp. and perhaps other trees and shrubs. The flight period is July and August and adults come to light.

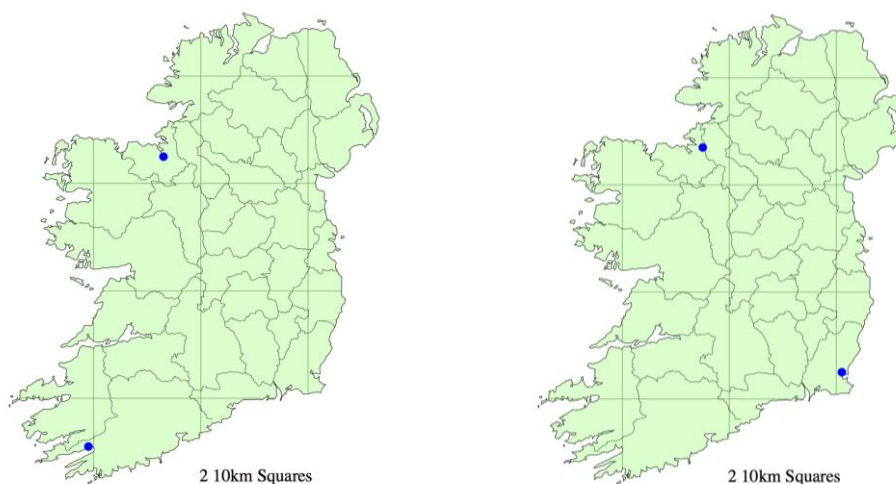
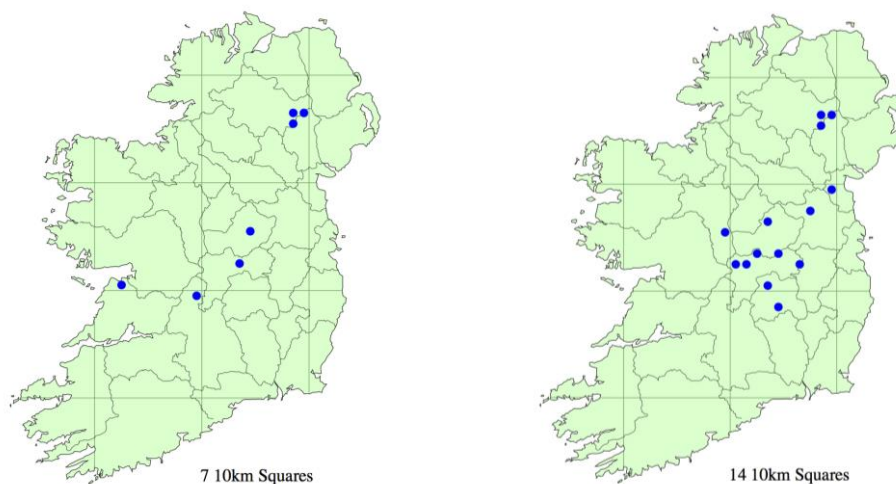


Figure 43: Distribution of Black Arches *Lymantria monacha* pre-2000 (left) and 2000-2012 (right).

72.016 Dark Tussock *Dicallomera fascelina***Near Threatened**

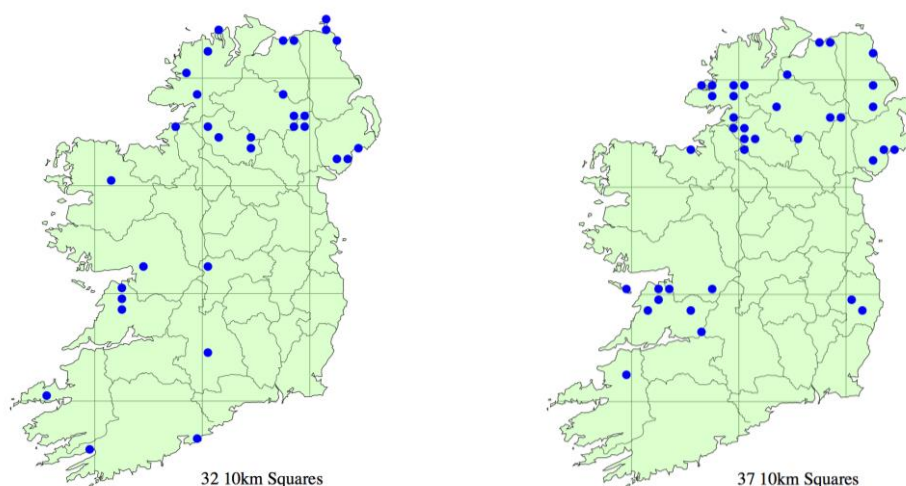
Dark Tussock is a species of bogs in Ireland and its distribution covers the main areas of raised bogs in central Ireland and around Lough Neagh in Northern Ireland. The main foodplant is presumably Heather *Calluna vulgaris*. The species occurs in more habitats in Britain than it does in Ireland and it can also utilise a greater range of foodplants. The species is lost from bogs when they are industrially harvested.



**Figure 44:** Distribution of Dark Tussock *Dicallomera fascelina* pre-2000 (left) and 2000-2012 (right).

72.025 Wood Tiger *Parasemia plantaginis***Near Threatened**

The Wood Tiger is a day-flying moth of wet heaths, dunes and open woodland. The larvae use a variety of herbaceous and low, shrubby foodplants including docks *Rumex* spp and Bell Heather *Erica cinerea*. The flight period is late May to early July. There is evidence of retraction in its range since 1999 and, although it remains widespread across northern counties and in the Burren, it is very local elsewhere.

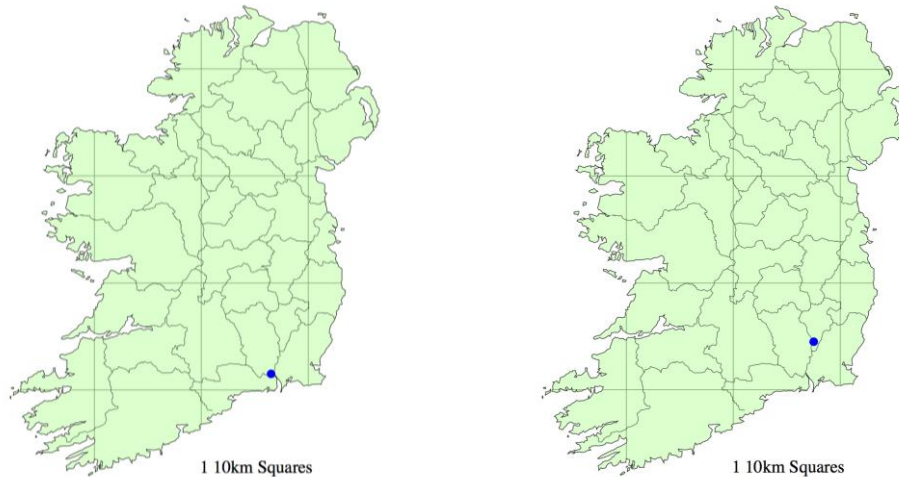


**Figure 45:** Distribution of Wood Tiger *Parasemia plantaginis* pre-2000 (left) and 2000-2012 (right).

72.035 Rosy Footman *Miltochrista miniata*

**Vulnerable**

This species is found in broad-leaved woodlands. The larvae feed on dog lichens *Peltigera* spp. The species is confined to the south-east where it is found in a restricted range in Cos. Waterford and Kilkenny. The adults fly in August and are attracted to light.

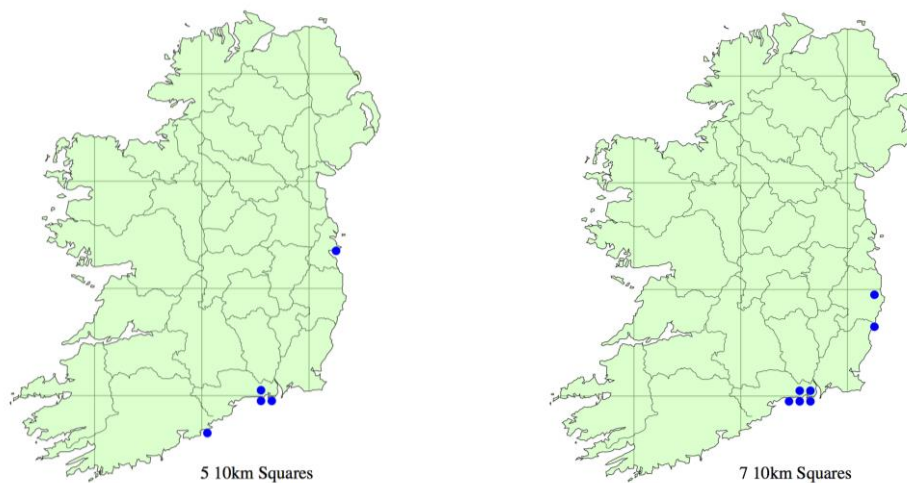


**Figure 46:** Distribution of Rosy Footman *Miltochrista miniata* pre-2000 (left) and 2000-2012 (right).

72.047 Hoary Footman *Eilema caniola*

**Near Threatened**

Lichens and algae growing on exposed rock are the foodplants of the Hoary Footman and it is found on rocky coasts, shingle banks and quarries. The adults are found in late summer to September. They appear at light. The species is found along the south and east coasts from east Co. Cork to Co. Dublin. The species has decreased at the edges of its range. This species is a suspected migrant and some records, in particular on the east coast, may refer to migrants.

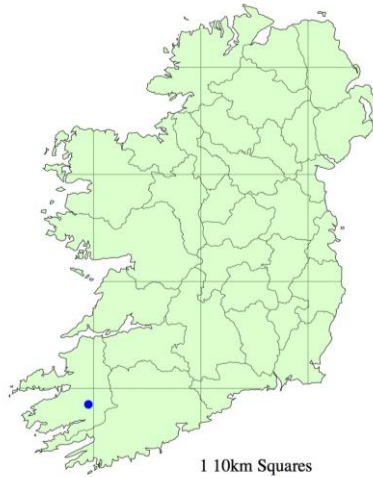


**Figure 47:** Distribution of Hoary Footman *Eilema caniola* pre-2000 (left) and 2000-2012 (right).

72.056 Common Fan-foot *Pechipogo strigilata*

**Regionally Extinct**

The vernacular name ‘common’ has always been inappropriate in Ireland as there have been so few verified records. The last was in 1913 so it qualifies as Regionally Extinct but the reasons for its disappearance are unknown. Common Fan-foot is a species of mature oak woodland. The caterpillars feed on oak *Quercus* leaves that are withered and mouldy. Adults fly in May and June and come to light.

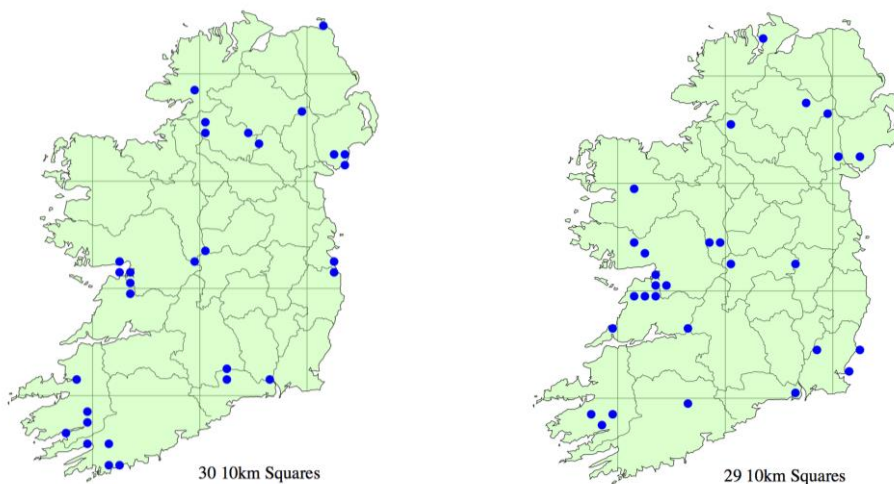


**Figure 48:** Distribution of Common Fan-foot *Pechipogo strigilata* pre-2000.

72.067 Small Purple-barred *Phytometra viridaria*

**Near Threatened**

This is a day-flying moth of unimproved calcareous grassland, limestone pavements and heaths. The flight period is long, mainly May and June but with a partial second generation in July and August. The larval foodplants are Milkwort *Polygala serpyllifolia* and Lousewort *Pedicularis sylvatica*. This is a widespread species in Ireland but there are many hectads where it was seen between 1970 and 1999 but not since.



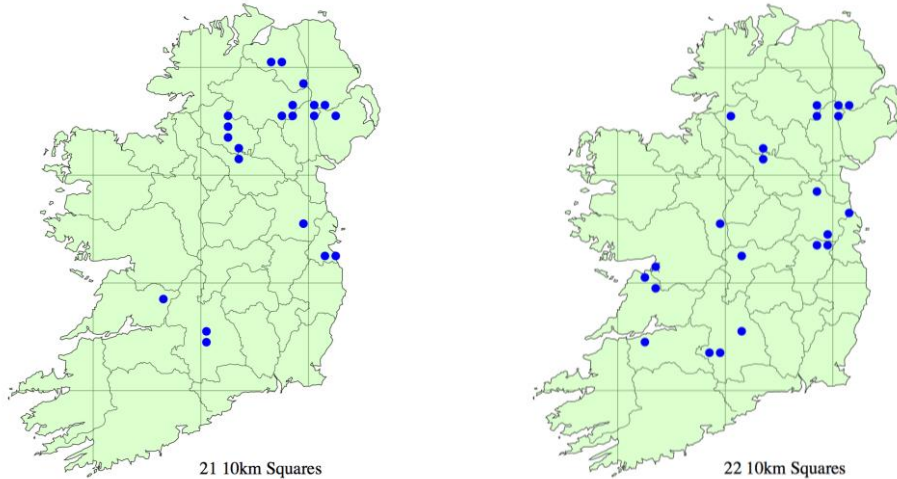
**Figure 49:** Distribution of Small Purple-barred *Phytometra viridaria* pre-2000 (left) and 2000-2012.



73.033 Figure of Eight *Diloba caeruleocephala*

**Near Threatened**

This is a species of hedgerows, scrub habitats and woodland. The larvae utilise many species of fruiting trees and shrubs. The adults fly in a single generation in autumn from mid-September to mid-November. The species is widespread but local and there is evidence of range contraction across much of its scattered range.

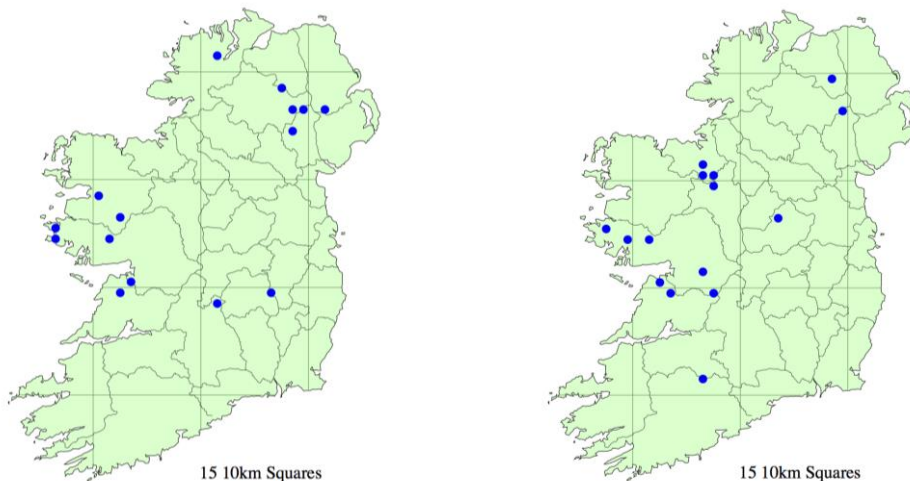


**Figure 50:** Distribution of Figure of Eight *Diloba caeruleocephala* pre-2000 (left) and 2000-2012 (right).

73.042 Light Knot Grass *Acrionicta menyanthidis*

**Vulnerable**

Assessed as Vulnerable as it has declined in parallel with loss of its habitat. It is associated with the wettest parts of bogs and these are threatened by peat extraction, drainage and afforestation. The foodplants include Heather *Calluna vulgaris*, Bog Myrtle *Myrica gale* and Bogbean *Menyanthes trifoliata*. Adults have a single generation from April to July and come readily to light.



**Figure 51:** Distribution of Light Knot Grass *Acrionicta menyanthidis* pre-2000 (left) and 2000-2012 (right).

73.050 Wormwood *Cucullia absinthii***Regionally Extinct**

The last record of this species was around 1901 and so it is considered Regionally Extinct. The larvae feed on the flowers and seedheads of Wormwood *Artemisia absinthium* (this is a rare coastal species mainly in SE Ireland) and perhaps Mugwort *Artemisia vulgaris*. The moth is most associated in Britain with derelict industrial and similar brownfield sites and also disturbed coastal habitats. There is one generation, flying in July.



**Figure 52:** Distribution of Wormwood *Cucullia absinthii* pre-2000.

73.058 Mullein *Cucullia verbasci***Regionally Extinct**

Not seen since 1952 and considered Regionally Extinct. The Irish records were all from Co. Cork. It feeds on mulleins *Verbascum* spp. and figworts *Scrophularia* spp. growing in a variety of habitats including woodland edge, dry grassland and road verges. Mulleins often grow in areas associated with some ground disturbance.

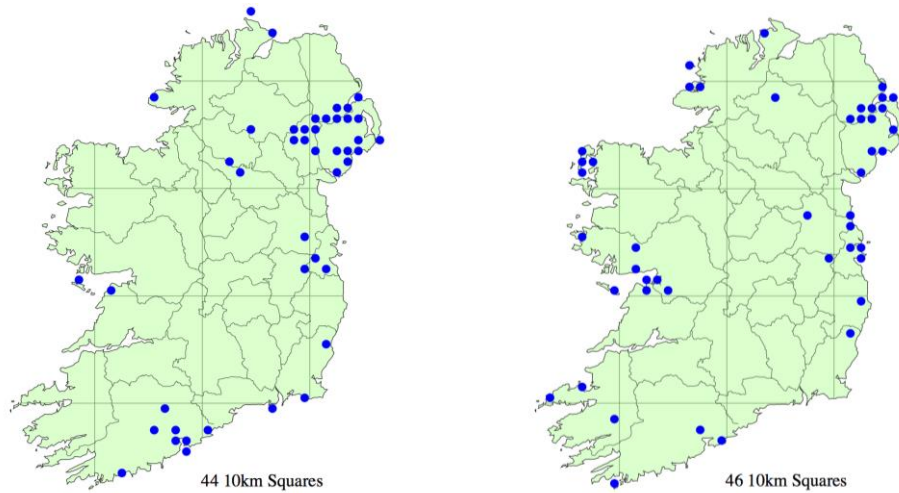


**Figure 53:** Distribution of Mullein *Cucullia verbasci* pre-2000.

73.064 Mouse Moth *Amphipyra tragopoginis*

**Near Threatened**

There appears to be a decline in this species at inland sites so that it is now largely confined to coastal sites. The adults fly in a single generation from July to September. It feeds on a wide variety of perennial herbs and shrubby species and is found in many habitats including fens and sand dunes.

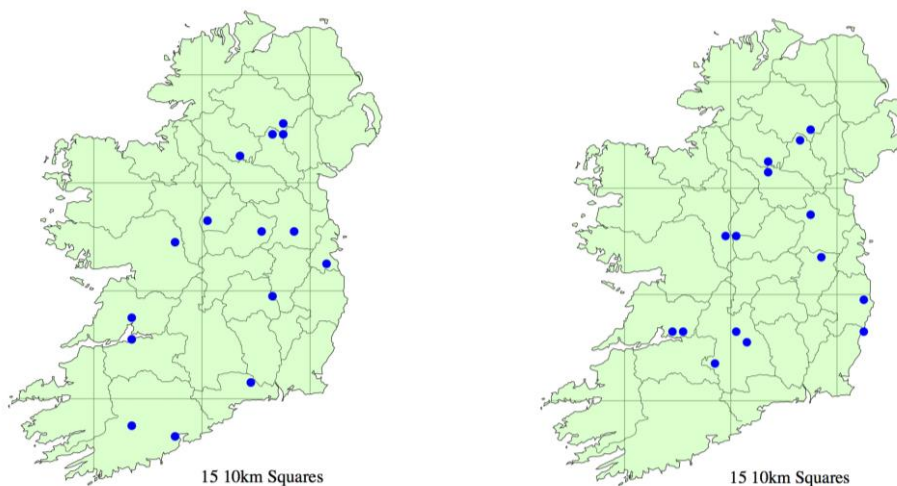


**Figure 54:** Distribution of Mouse Moth *Amphipyra tragopoginis* pre-2000 (left) and 2000-2012 (right).

73.065 Sprawler *Asteroscopus sphinx*

**Near Threatened**

This is a late autumnal flying species of broad-leaved woodland. Adults are easily attracted to light and in Ireland adults have been recorded between mid-October and early December. The larvae feed in spring and early summer on leaves of various broad-leaved trees. The species is known from scattered populations and the maps indicate a decline in its range and number of occupied hectads.



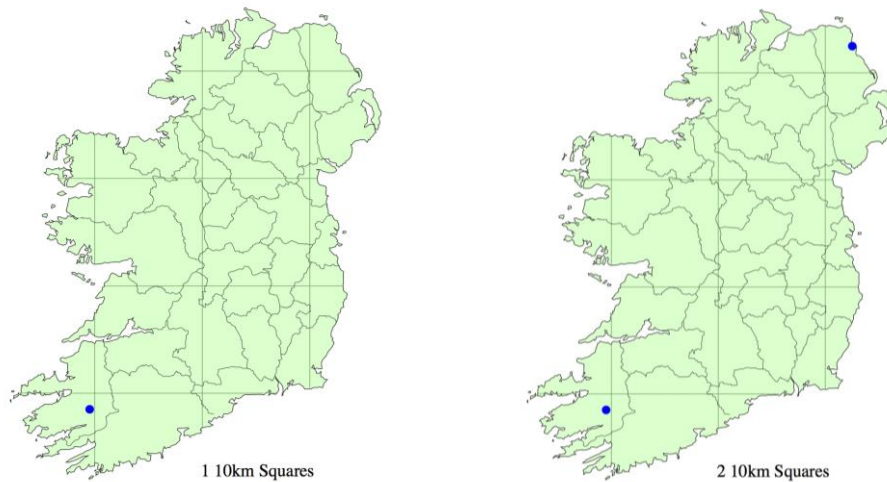
**Figure 55:** Distribution of Sprawler *Asteroscopus sphinx* pre-2000 (left) and 2000-2012 (right).



73.110 Saxon *Hyppa rectilinea*

**Vulnerable**

Adults fly in a single generation from May to early July. It is found in broad-leaved woodland and upland heaths. The larvae feed on the foliage of willows *Salix* spp. and Bramble *Rubus fruticosus*. The Saxon has a very restricted range in Ireland, occurring in Cos. Antrim and Kerry but nowhere in between. Irish specimens appear darker than the normal British form and this deserves investigation. Such a difference in appearance, if confirmed, would argue against recent colonisation.

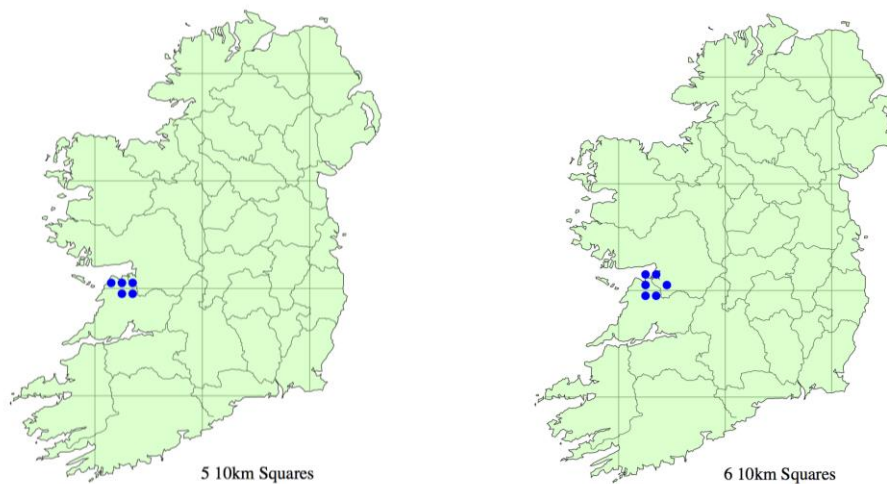


**Figure 56:** Distribution of Saxon *Hyppa rectilinea* pre-2000 (left) and 2000-2012 (right).

73.116 Burren Green *Calamia tridens*

**Near Threatened**

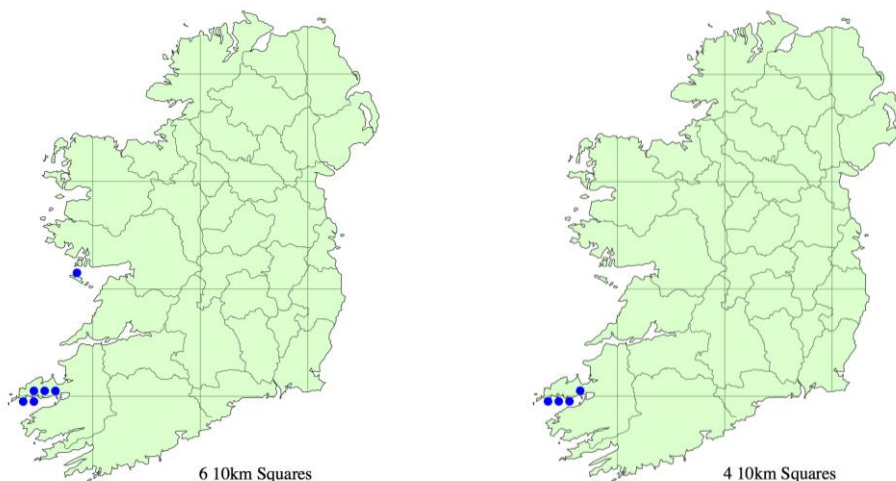
The only resident populations of this species in Britain and Ireland are in the Burren region of Cos Clare and Galway. It is found on calcareous grassland and sand dunes and the larvae feed on Blue Moor-grass *Sesleria caerulea*. Adults are attracted to light and are mainly recorded in August. The species is assessed as Near Threatened because of the decline in habitat quality in the past. However this may have ceased, as much of the range is included in Special Areas of Conservation.



**Figure 57:** Distribution of Burren Green *Calamia tridens* pre-2000 (left) and 2000-2012 (right).

73.132 Sandhill Rustic *Luperina nickerlii***Endangered**

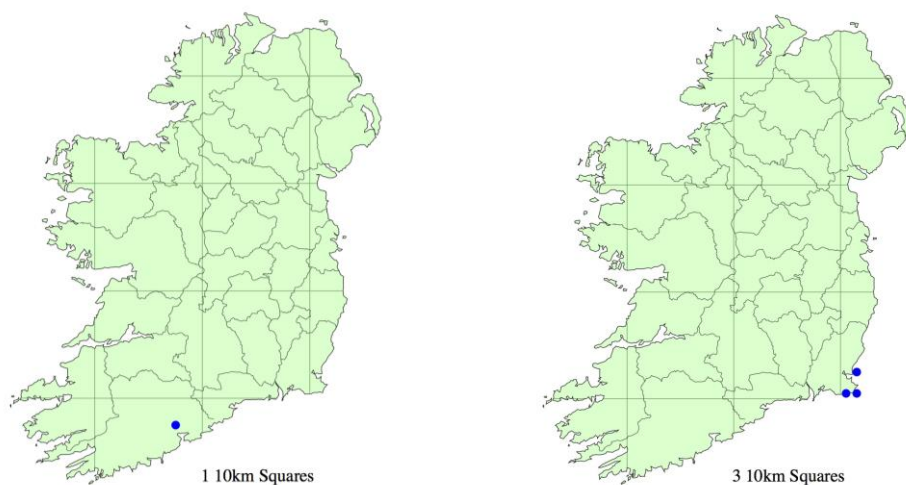
The Irish population is part of a complex of isolated and range-restricted populations, many of which are given subspecific status. The Irish subspecies *knilli* is confined to the south coast of the Dingle peninsula in Co. Kerry between Inch and Dingle. There is one record from the Aran Islands, Co. Galway but this needs verification. Adults fly in a single generation from late July to early September. The larval foodplant is Red Fescue *Festuca rubra*. The moth occurs on undercliffs and upper beach so is threatened by habitat loss through factors such as erosion and in the long term by climate change. The genetics of the various subspecies were investigated by Spalding *et al.* (2013).



**Figure 58:** Distribution of Sandhill Rustic *Luperina nickerlii* pre-2000 (left) and 2000-2012 (right).

73.139 Twin-spotted Wainscot *Lenisa geminipuncta***Vulnerable**

Common Reed *Phragmites australis* is the larval foodplant of this moth that is found in large unmanaged reed beds. The adults are also highly dispersive. The adults do not feed and come sparingly to light, flying in a single generation in August and September. The only recent records are from Co. Wexford.



**Figure 59:** Distribution of Twin-spotted Wainscot *Lenisa geminipuncta* pre-2000 (left) and 2000-2012

73.151 Webb's Wainscot *Globia sparganii*

**Vulnerable**

A wetland species that feeds on Yellow Iris *Iris pseudacorus* and species of bulrush *Typha* spp. and club rush *Sparganium* spp. In Ireland, associated only with coastal wetlands but the reason for this is unclear given that some of the foodplants are very widespread at inland sites. The adults have been seen between August and October. The Irish records are from the south and east coasts from Co. Wexford to West Cork with evidence of losses in parts of this range.

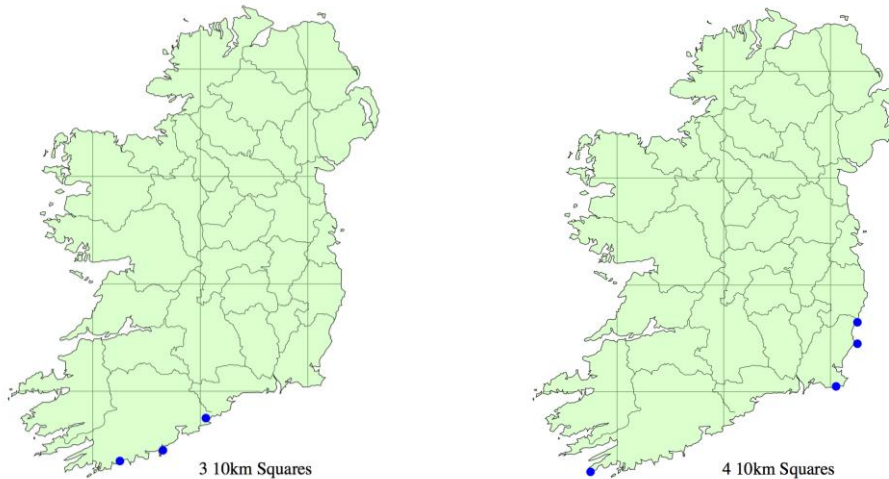


Figure 60: Distribution of Webb's Wainscot *Globia sparganii* pre-2000 (left) and 2000-2012 (right).

73.161 Crescent Striped *Apamea oblonga*

**Endangered**

This is found in saltmarshes and coastal wetlands that have some saline influence. The larvae feed on grasses including Common Saltmarsh-grass *Puccinellia maritima*. Adults in Ireland have been seen between late June and early August. There is a single generation and adults are attracted to light. This has always been rare in Ireland and it has only been recorded in recent years from Cos. Meath and Wexford.

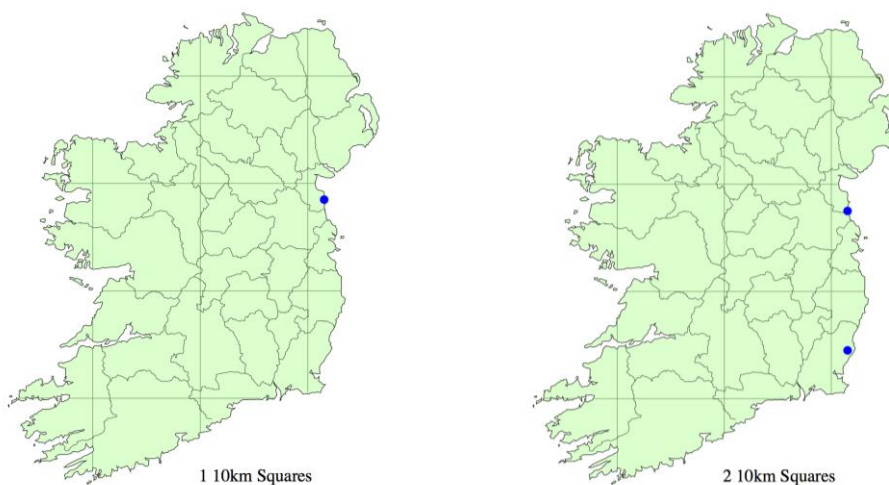
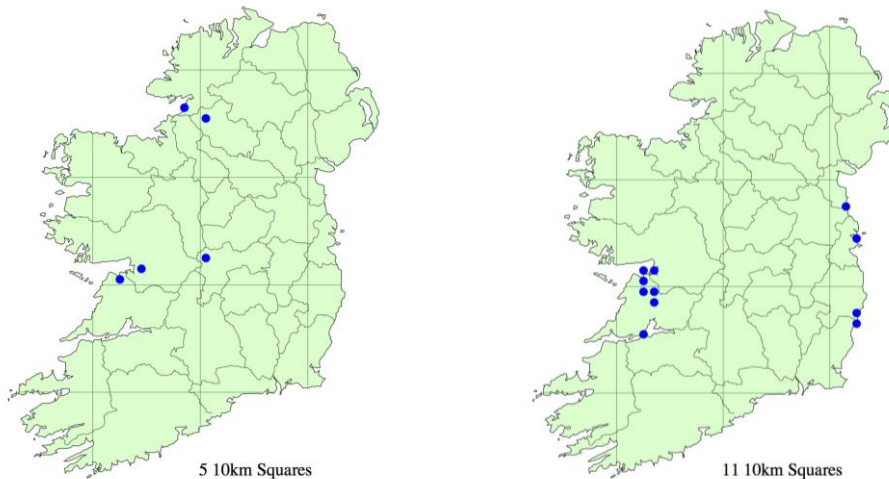


Figure 61: Distribution of Crescent Striped *Apamea oblonga* pre-2000 (left) and 2000-2012 (right).

73.164 Reddish Light Arches *Apamea sublustris*

**Near Threatened**

This is a species of dry grassland types such as those found on sand dunes and thin soils on calcareous rocks. The distribution is restricted to the Burren and the east coast from Co. Louth to Co. Wexford. It has been lost from inland sites and so assessed as Near Threatened. The adults fly in June and July and come to light. The larvae feed on various grasses.

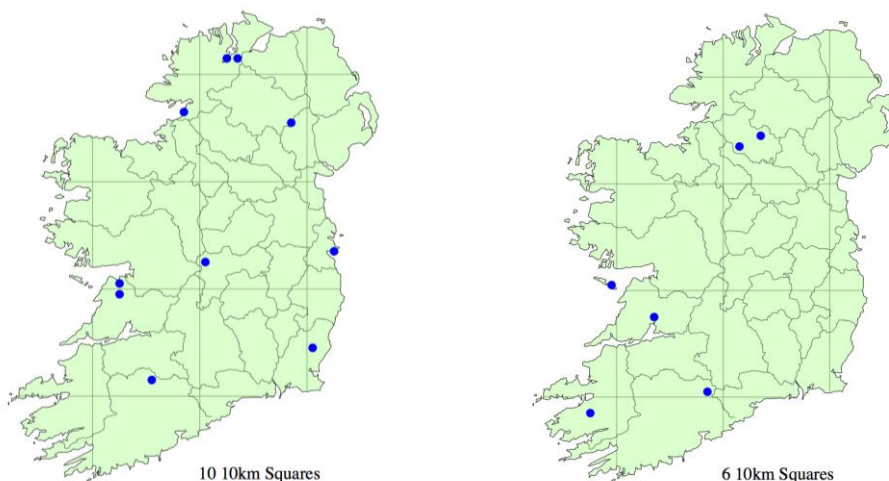


**Figure 62:** Distribution of Reddish Light Arches *Apamea sublustris* pre-2000 (left) and 2000-2012 (right).

73.173 Marbled Minor *Oligia strigilis*

**Data Deficient**

There are three very similar *Oligia* species in Ireland and certain identification of these species relies on examination of the genitalia. The map only shows verified records, which suggests this is the least common of the Irish species and perhaps declining. The assessment is therefore Data Deficient until comprehensive data from reliably named specimens is obtained.



**Figure 63:** Distribution of Marbled Minor *Oligia strigilis* pre-2000 (left) and 2000-2012 (right).

73.208 Sword-grass *Xylena exsoleta*

**Regionally Extinct**

As there have been no confirmed records since 1962 this is assessed as Regionally Extinct. The reasons for its apparent extinction are not known. This is an upland species occurring in grassland, heaths and open woods. The larvae can develop on a wide variety of herbaceous foodplants and perhaps shrubs. Adults come to light, flowers and sweet attractants. The flight season is long from September to May including a hibernation period from October to March.



**Figure 64:** Distribution of Sword-grass *Xylena exsoleta* pre-2000.

73.211 Angle-striped Sallow *Enargia paleacea*

**Data Deficient**

This species has only been recorded from a single site in Co. Fermanagh on one occasion in 2002. As there is uncertainty in its status, the agreed assessment was Data Deficient. It feeds on birches *Betula* spp. and is associated in Britain with sites with mature trees and long-established woodland. The adults fly in a single generation in August and September and come to light.

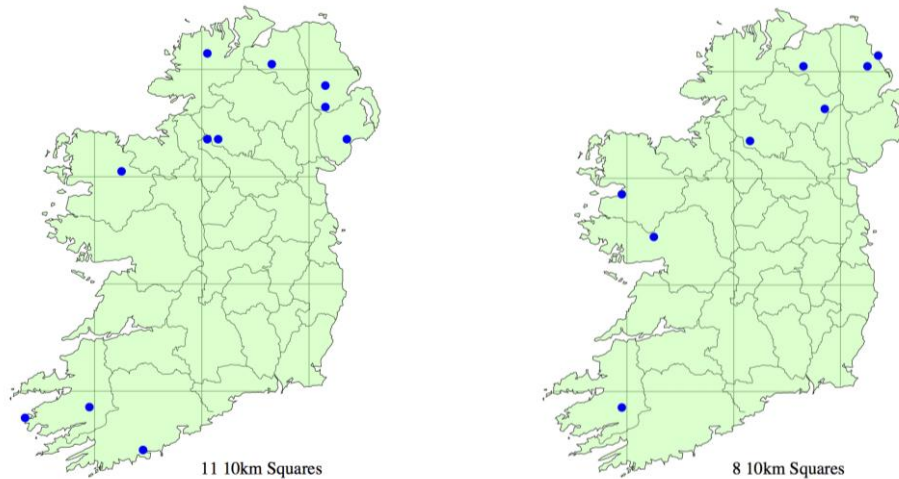


**Figure 65:** Distribution of Angle-striped Sallow *Enargia paleacea* 2000-2012.



73.220 Minor Shoulder-knot *Brachylomia viminalis***Vulnerable**

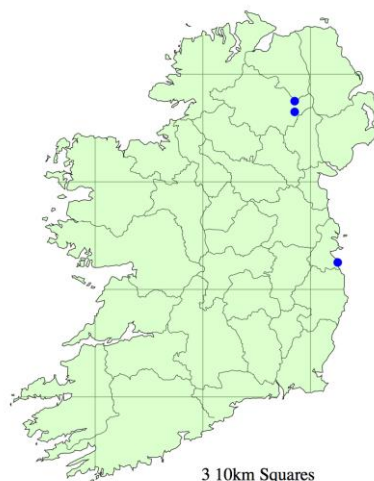
This occurs in wetlands, damp woodland and heaths. The main larval foodplant is Grey Willow *Salix cinerea*. Adults are attracted to light and in Ireland have been recorded between late June and early September but mainly in July. It has a very scattered distribution across the north and west and in the south-west. The species still occurs in most of this range but the old records outnumber the new and it is considered to have declined in parallel with habitat loss.



**Figure 66:** Distribution of Minor Shoulder-knot *Brachylomia viminalis* pre-2000 (left) and 2000-2012.—

73.221 Suspected *Parastichtis suspecta***Regionally Extinct**

Last recorded in 1962 the larvae of this species feed on birches *Betula* spp. and perhaps willows *Salix* spp. It occurs in damp woodlands on bogs, heaths and wetlands. The reasons for its extinction are not known. The adults fly in one generation from July-August and are attracted to light.



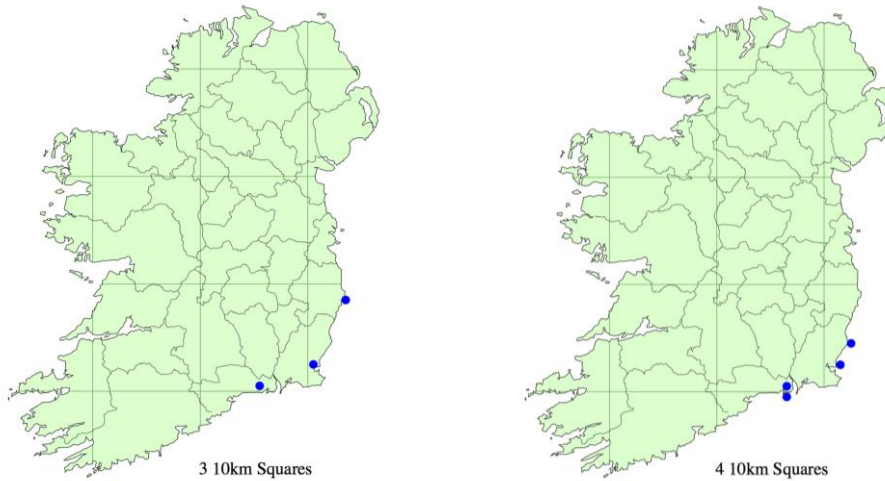
**Figure 67:** Distribution of Suspected *Parastichtis suspecta* pre-2000.



73.230 Feathered Brindle *Aporophyla australis*

**Vulnerable**

Restricted to the south-east in Cos. Waterford, Wexford and Wicklow, this species is found on shingle banks, soft cliffs and sand dunes. The larvae feed on species such as Sea Campion *Silene maritima*, Bramble *Rubus fruticosus* and Common Sorrel *Rumex acetosa*. Adults fly in a single generation in late summer and autumn (September and October in Ireland) and come readily to light.

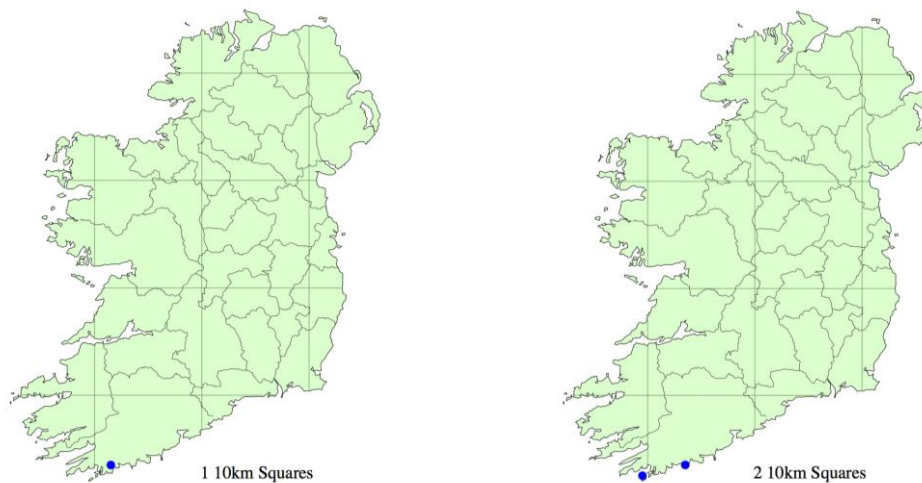


**Figure 68:** Distribution of Feathered Brindle *Aporophyla australis* pre-2000 (left) and 2000-2012 (right).

73.236 Black-banded *Polymixis xanthomista*

**Vulnerable**

The Black-banded is a species of rocky coastlines and its main foodplant is thought to be Thrift *Armeria maritima*. The adults fly in a single generation in late summer and early autumn with Irish records in September and October. The species is only known from the coastline of Co. Cork and it is considered Vulnerable because of its restricted range. See Thrift Clearwing, which has a similar modern range.



**Figure 69:** Distribution of Black-banded *Polymixis xanthomista* pre-2000 (left) and 2000-2012 (right).

73.243 Blossom Underwing *Orthosia miniosa*

**Regionally Extinct**

This is a spring-flying moth on the wing in March and April. The adults are found at catkins of willows *Salix* spp. but come infrequently to light. The caterpillars feed on the leaves of oak *Quercus* spp. in spring and early summer. It is found in oak woodland and mature hedges with oak trees. This was formerly found in woods especially in south Co. Wicklow but as it has not been seen in Ireland since 1961 it is assessed as Regionally Extinct. Suitable habitat would seem to still exist so the reasons for its disappearance are unclear.

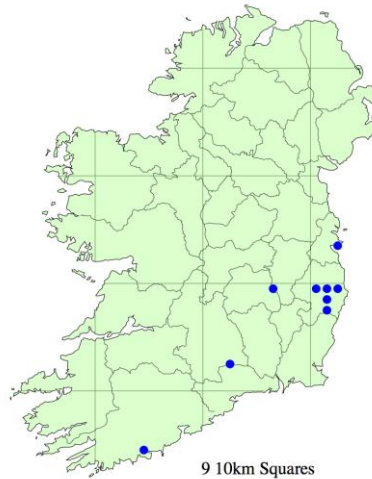


Figure 70: Distribution of Blossom Underwing *Orthosia miniosa* pre-2000.

73.246 Lead-coloured Drab *Orthosia populeti*

**Vulnerable**

Flying in March and April, this is a woodland and parkland species. The larvae are found on poplars *Populus* spp. including Aspen *P. tremula* feeding on the catkins and new leaves. The adults come to light. Recent records are confined to the woodlands of the Fermanagh/Cavan border area.

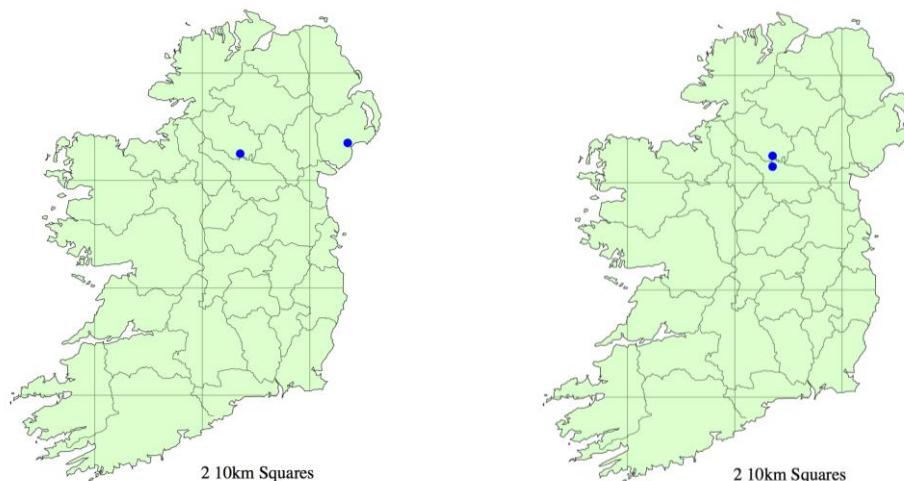


Figure 71: Distribution of Lead-coloured Drab *Orthosia populeti* pre-2000 (left) and 2000-2012 (right).

73.248 Northern Drab *Orthosia opima*

**Vulnerable**

This species is found in a range of habitats in Britain but in Ireland has only been found recently on woodland/bog edge where the foodplants occur. The larvae feed on small willows *Salix* spp. and birches *Betula* spp. as well as herbaceous species. The flight period is early to late spring in April and May. The adults come to light and, apparently, sugary attractants.

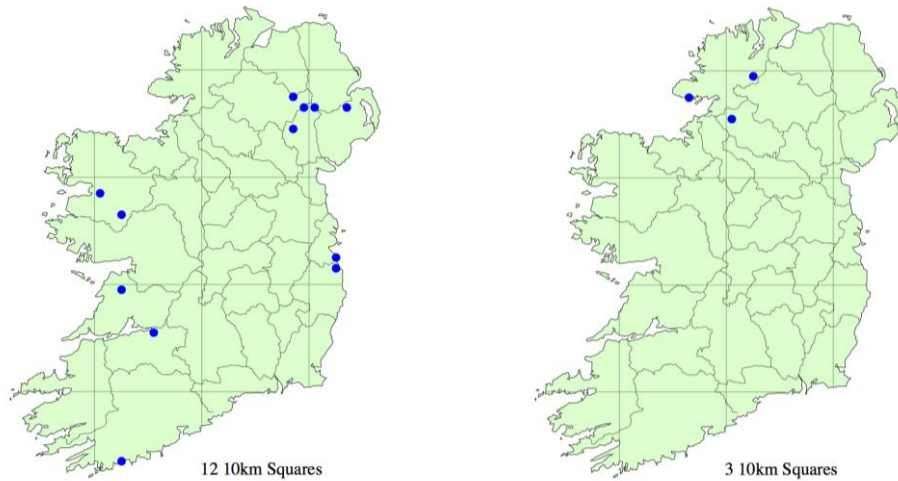


Figure 72: Distribution of Northern Drab *Orthosia opima* pre-2000 (left) and 2000-2012 (right).

73.253 Feathered Gothic *Tholera decimalis*

**Critically Endangered**

Flying in late August and September the adults of this species come to light. Larvae feed on hard-bladed grasses including Matgrass *Nardus stricta* and Sheep's Fescue *Festuca ovina* in rough unimproved and semi-improved grassland. This species has shown a marked and obvious decline hence its high threat category. The reasons are unknown but are presumably linked to agricultural change and reduction in suitable conditions of coastal sites.

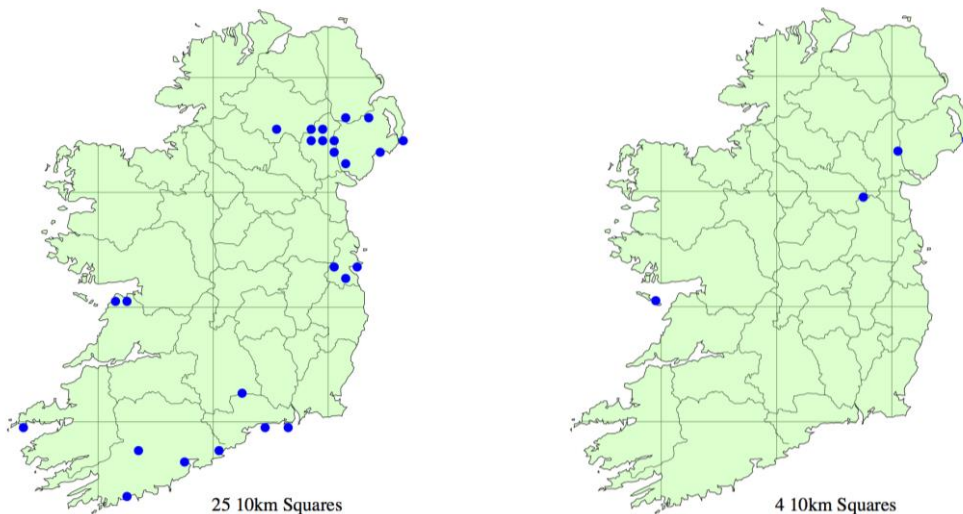


Figure 73: Distribution of Feathered Gothic *Tholera decimalis* pre-2000 (left) and 2000-2012 (right).

73.259 Pale Shining Brown *Polia bombycina*

**Regionally Extinct**

The wild foodplants for this species are uncertain but may be a range of herbaceous plants or trees and shrubs in scrubby grasslands on calcareous soils. The adults fly in June and July and the larvae overwinter. This species was last seen at Tramore, Co Waterford in 1956.



Figure 74: Distribution of Pale Shining Brown *Polia bombycina* pre-2000.

73.266 Dog's Tooth *Lacanobia suasa*

**Near Threatened**

Found in saltmarshes and coastal saline habitats in Ireland. There appear to be two generations, the first peaking in June and the second in late July. Larval foodplants include sea-lavenders *Limonium*, plantains *Plantago* and goosefoots *Chenopodium*. The species is recorded around the coast as far north as Belfast Lough in the east and Clew Bay in the west. It appears to have been lost from many western and southern sites giving it a Near Threatened assessment.

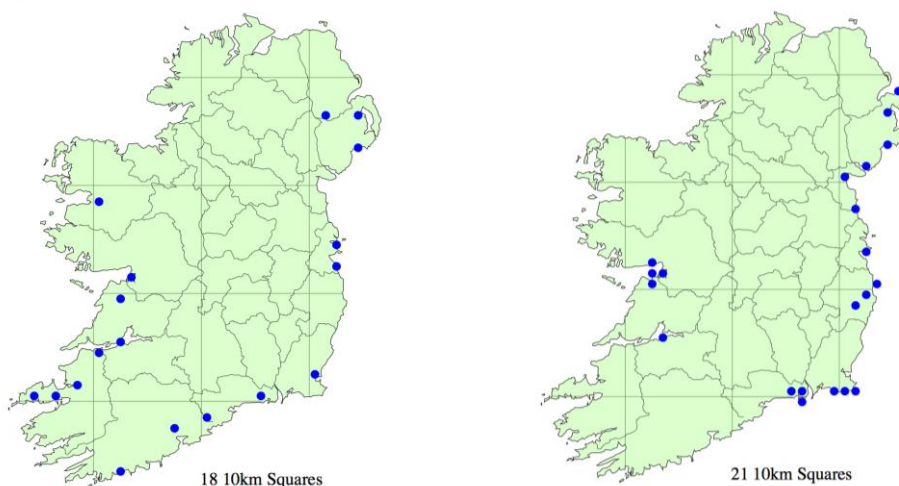
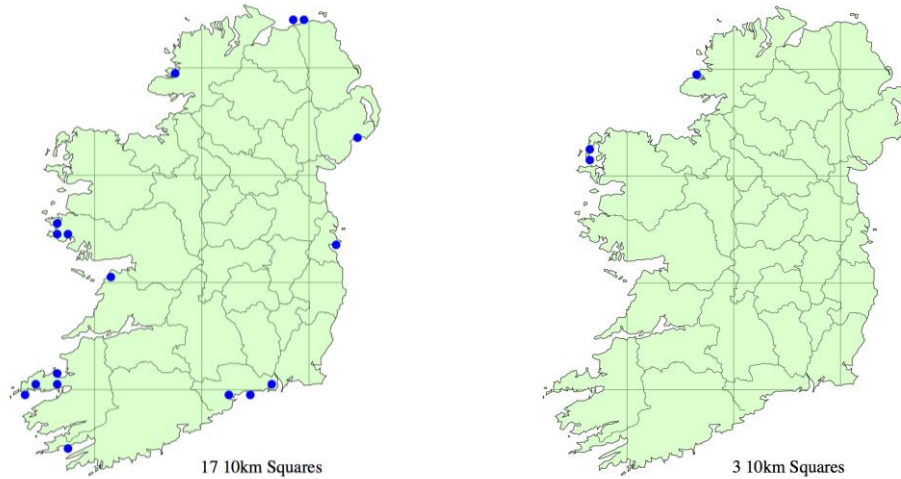


Figure 75: Distribution of Dog's Tooth *Lacanobia suasa* pre-2000 (left) and 2000-2012 (right).

73.308 Portland Moth *Actebia praecox*

**Critically Endangered**

This species is only found on sand dunes in Ireland where larvae feed on Creeping Willow *Salix repens*. The habitat requirements include bare sand as the caterpillars spend the day buried beneath the foodplant, emerging to feed at night. The adults fly in a single generation in August and September. Many coastal systems have lost the foodplant due to factors such as over-grazing. This species could also potentially appear as a rare migrant.

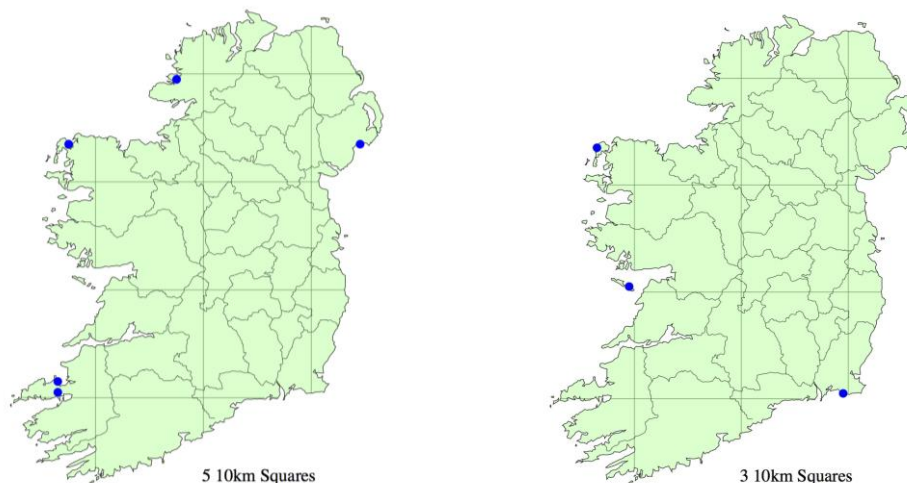


**Figure 76:** Distribution of Portland Moth *Actebia praecox* pre-2000 (left) and 2000-2012 (right).

73.311 Coast Dart *Euxoa cursoria*

**Near Threatened**

This species occurs in well-vegetated sand dunes. The larvae feed on a variety of dune species including grasses, sedges and herbaceous species. The adults fly in July and August and come readily to light. Critical examination of adults is crucial to obtain a definitive identification.

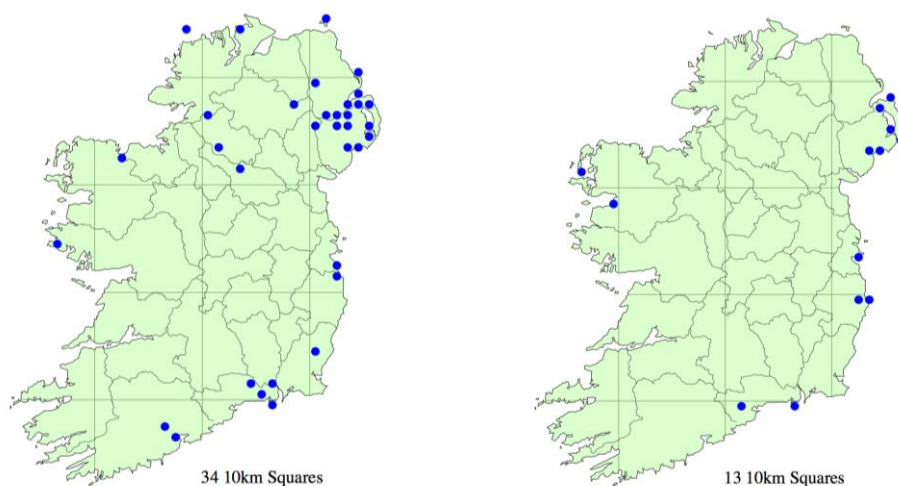


**Figure 77:** Distribution of Coast Dart *Euxoa cursoria* pre-2000 (left) and 2000-2012 (right).



73.314 Garden Dart *Euxoa nigricans***Near Threatened**

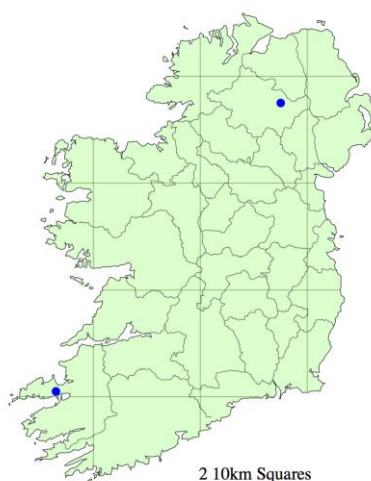
The habitat requirements of this species are poorly understood. The larvae can feed on a variety of perennial herbs. Most of the records come from uncultivated sites and there appears to be a declining trend in the range. Adults come to light and fly in a single generation in July, August and early September.



**Figure 78:** Distribution of Garden Dart *Euxoa nigricans* pre-2000 (left) and 2000-2012 (right).

73.316 Light Feathered Rustic *Agrotis cinerea***Critically Endangered**

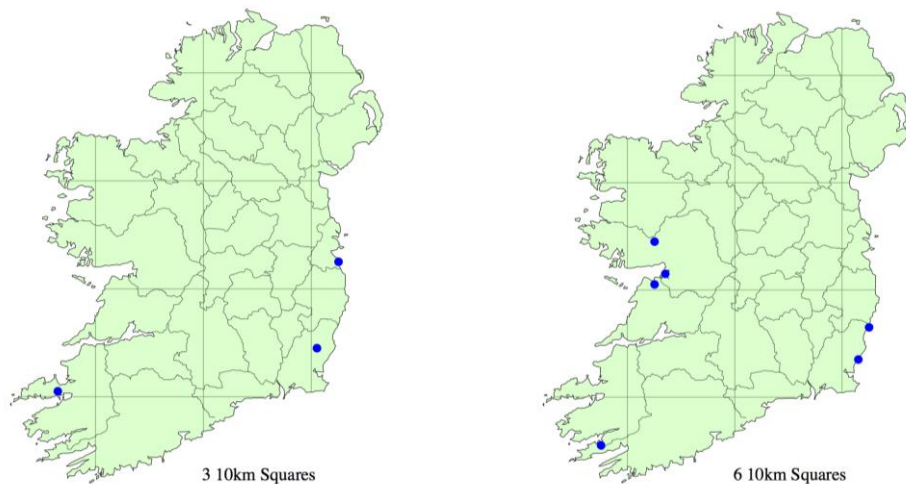
The larval foodplant is Wild Thyme *Thymus polytrichus* and this species is found on calcareous grassland with a sparse and short sward. Adults are found in May and June and are attracted to light. There have been just a few Irish records, the last in 1968. The species is a presumed resident and the reason for its decline is considered to be loss of suitable habitat.



**Figure 79:** Distribution of Light Feathered Rustic *Agrotis cinerea* pre-2000.

73.320 Heart & Club *Agrotis clavis***Near Threatened**

There is a single generation of this moth in mid to late summer, June, July and early August. Adults can be seen in sand dunes and on dry grasslands especially on calcareous sites. The larvae feed on herbaceous perennials such as Broad-leaved Dock *Rumex obtusifolius* and Wild Carrot *Daucus carota*.



**Figure 80:** Distribution of Heart & Club *Agrotis clavis* pre-2000 (left) and 2000-2012 (right).

73.339 Dotted Rustic *Rhyacia simulans***Vulnerable**

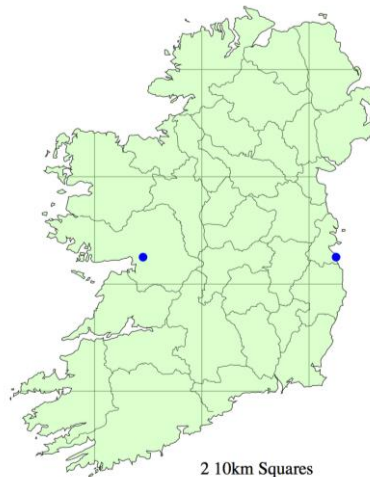
There have been just a few Irish records from dune systems in the north-west. It was last reported in 1969. The species is assessed as Vulnerable. Adults have a long flight period in the south of the range, which involves a period of aestivation. In northern Britain, the adults are seen from July through to the end of September but how this equates to the poorly known Irish population is unclear. The larval foodplant is not known. Habitats occupied in Britain include open woodland and rural gardens, usually on calcareous soils, and in the north, moorland and screes.



**Figure 81:** Distribution of Dotted Rustic *Rhyacia simulans* pre-2000.

73.360 Triple-spotted Clay *Xestia ditrapezium***Regionally Extinct**

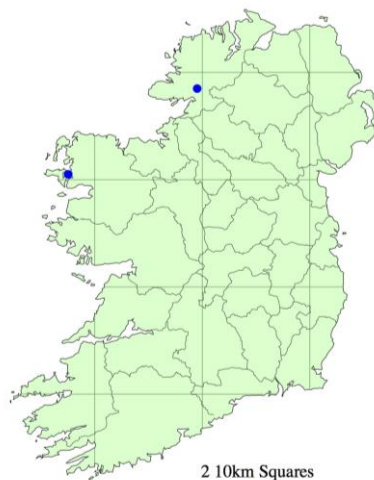
There is a single generation of adults in late June to early August with larvae from August to the following spring. Adults come to light and sugary attractants. The foodplants include herbaceous plants such as Primrose *Primula vulgaris* but also trees and shrubs in damp, open woodland. There are just a few Irish records, the last being in 1956. This species is therefore assessed as Regionally Extinct. There are many claims of this species annually which to date have all been shown to be misidentifications of a common species.



**Figure 82:** Distribution of Triple-spotted Clay *Xestia ditrapezium* pre-2000.

73.363 Northern Dart *Xestia alpicola***Data Deficient**

This is an upland species generally found in Britain above 450m but at lower altitudes in northern areas. The larval stage lasts two years and adults fly in a single generation in July and August. They are attracted to light. The main foodplant is stated to be Crowberry *Empetrum nigrum* but related species may also be used. There have been two accepted Irish records from Cos. Mayo and Donegal. The upland habitat used is threatened by changing land use, overgrazing and climate change.



**Figure 83:** Distribution of Northern Dart *Xestia alpicola* pre-2000.

74.011 Cream-bordered Green Pea *Earias clorana*

**Regionally Extinct**

This moth is found in fens, bogs and wet woodland but also on vegetated shingle and damp heaths with Creeping Willow *Salix repens*. The only Irish records were from the Coomarkane valley near Glengarriff, Co. Cork where two were recorded in 1914. In the absence of any records for over 50 years it is assessed as Regionally Extinct. The caterpillars feed on the terminal shoots of various willows *Salix* spp. In Britain, there is generally a single annual generation from late May to end of July with an occasional, partial, second generation. The adults are readily attracted to light traps.



**Figure 84:** Distribution of Cream-bordered Green Pea *Earias clorana* pre-2000.

## REFERENCES

- Agassiz, D.J.L., Beavan, S.D. and Heckford, R.J. (2015). Dataset: Checklist of the Lepidoptera of the British Isles - Data. <http://dx.doi.org/10.5519/0093915>
- Baynes, E. S. A. (1964) *A revised catalogue of Irish Lepidoptera*. Clasesy, Middlesex.
- Baynes, E. S. A. (1970) *Supplement to a revised catalogue of Irish Lepidoptera*. Clasesy, Middlesex.
- Bond, K.G.M. and Gittings, T. (2008) Database of Irish Lepidoptera. 1 - Macrohabitats, microsites and traits of Noctuidae and butterflies. *Irish Wildlife Manuals* 35. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government, Dublin, Ireland.
- Bond, K.G.M., Nash, R. and O'Connor, J.P. (2006) *An Annotated Checklist of the Irish Butterflies and Moths (Lepidoptera)*. The Irish Biogeographical Society and the National Museum of Ireland, Dublin.
- Bond, K.G.M. and O'Connor, J.P. (2012) Additions, deletions and corrections to *An Annotated Checklist of the Irish Butterflies and Moths (Lepidoptera)* with a concise checklist of Irish species and *Elachista biatomella* (Stainton, 1848) new to Ireland. *Bulletin of the Irish Biogeographical Society* 36: 60-179.
- Donovan, C. (1936) *A Catalogue of the Macrolepidoptera of Ireland*. E.J. Burrow, Cheltenham and London.
- Fox, R., Parsons, M.S., Chapman, J.W., Woiwod, I.P., Warren, M.S. and Brooks, D.R. (2013) *The State of Britain's Larger Moths 2013*. Butterfly Conservation and Rothamsted Research, Wareham, Dorset, UK.
- IUCN. (2012a) *Guidelines for Application of IUCN Red List Criteria at Regional and National Levels: Version 4.0*. Gland, Switzerland and Cambridge, UK: IUCN. iii + 41pp.
- IUCN. (2012b) *IUCN Red List Categories and Criteria: Version 3.1*. Second edition. Gland, Switzerland and Cambridge, UK: IUCN. iv + 32pp.
- Kane, W. F. de V. (1901) *A catalogue of the Lepidoptera of Ireland*. West, Newman & Co., London.
- Spalding A., Fukova, I. and Ffrench-Constant, R.H. (2013) The genetics of *Luperina nickerlii* Freyer, 1845 in Europe (Noctuidae). *Nota lepidopterologica* 36: 35-46.
- Stace, C. (2010) *New Flora of the British Isles*. 3<sup>rd</sup> Edition. Cambridge University Press, Cambridge.
- Thompson, R. and Nelson, B. (2006) *The Butterflies and Moths of Northern Ireland*. National Museums of Northern Ireland, Belfast.
- Waring, P., Townsend, M. and Lewington, R. (2003) *The Field Guide to the Moths of Great Britain and Ireland*. British Wildlife Publishing, Hook, Hampshire.
- Wright, W. S. (1964) *The Macro-lepidoptera of Northern Ireland*. Publication No. 169. Ulster Museum, Belfast.



**APPENDIX 1: SUMMARY OF THE FIVE CRITERIA (A-E) USED TO EVALUATE IF A TAXON BELONGS IN A THREATENED CATEGORY; CRITICALLY ENDANGERED, ENDANGERED OR VULNERABLE (IUCN, 2012).**

Use any of the criteria A–E	Critically Endangered	Endangered	Vulnerable
<b>A. Population reduction</b>	Declines measured over the longer of 10 years or 3 generations		
<b>A1</b>	≥ 90%	≥ 70%	≥ 50%
<b>A2, A3 &amp; A4</b>	≥ 80%	≥ 50%	≥ 30%
<p><b>A1.</b> Population reduction observed, estimated, inferred, or suspected in the past where the causes of the reduction are clearly reversible <b>AND</b> understood <b>AND</b> have ceased, based on and specifying any of the following:</p> <p>(a) direct observation            (b) an index of abundance appropriate to the taxon            (c) a decline in area of occupancy (AOO), extent of occurrence (EOO) and/or habitat quality            (d) actual or potential levels of exploitation            (e) effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites.</p> <p><b>A2.</b> Population reduction observed, estimated, inferred, or suspected in the past where the causes of reduction may not have ceased OR may not be understood OR may not be reversible, based on (a) to (e) under A1.</p> <p><b>A3.</b> Population reduction projected or suspected to be met in the future (up to a maximum of 100 years) based on (b) to (e) under A1.</p> <p><b>A4.</b> An observed, estimated, inferred, projected or suspected population reduction (up to a maximum of 100 years) where the time period must include both the past and the future, and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible, based on (a) to (e) under A1.</p>			
<b>B. Geographic range in the form of either B1 (extent of occurrence) AND/OR B2 (area of occupancy)</b>			
<b>B1.</b> Extent of occurrence (EOO)	< 100 km <sup>2</sup>	< 5,000 km <sup>2</sup>	< 20,000 km <sup>2</sup>
<b>B2.</b> Area of occupancy (AOO)	< 10 km <sup>2</sup>	< 500 km <sup>2</sup>	< 2,000 km <sup>2</sup>
<b>AND at least 2 of the following:</b>			
(a) Severely fragmented, <b>OR</b> Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals.			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals.			
<b>C. Small population size and decline</b>			
Number of mature individuals	< 250	< 2,500	< 10,000
<b>AND either C1 or C2:</b>			
<b>C1.</b> An estimated continuing decline of at least:	25% in 3 years or 1 generation	20% in 5 years or 2 generations	10% in 10 years or 3 generations
	(up to a max. of 100 years in future)		
<b>C2.</b> A continuing decline			
<b>AND (a) and/or (b):</b>			
(a i) Number of mature individuals in each subpopulation:	< 50	< 250	< 1,000
<b>or</b>			
(a ii) % individuals in one subpopulation =	90–100%	95–100%	100%
(b) Extreme fluctuations in the number of mature individuals.			
<b>D. Very small or restricted population</b>			
<b>Either:</b>			
Number of mature individuals	< 50	< 250	<b>D1.</b> < 1,000 <b>AND/OR</b>
<b>VU D2.</b> Restricted area of occupancy or number of locations with a plausible future threat that could drive the taxon to CR or EX in a very short time.			<b>D2.</b> typically: AOO<20 km <sup>2</sup> or number of locations ≤ 5
<b>E. Quantitative Analysis</b>			
Indicating the probability of extinction in the wild to be:	≥ 50% in 10 years or 3 generations (100 years max.)	≥ 20% in 20 years or 5 generations (100 years max.)	≥ 10% in 100 years

## APPENDIX 2 – CHECKLIST OF IRISH MACRO-MOTHS

Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
3.002 Common Swift <i>Korscheltellus lupulina</i> (Linnaeus)	LC
3.003 Map-winged Swift <i>Korscheltellus fusconebulosa</i> (DeGeer)	LC
3.004 Gold Swift <i>Phymatopus hecta</i> (Linnaeus)	LC
3.005 Ghost Moth <i>Hepialus humuli</i> (Linnaeus)	LC
50.001 Goat Moth <i>Cossus cossus</i> (Linnaeus)	LC
50.002 Leopard Moth <i>Zeuzera pyrina</i> (Linnaeus)	NE
52.002 Hornet Moth <i>Sesia apiformis</i> (Clerck)	RE
52.003 Lunar Hornet Moth <i>Sesia bembeciformis</i> (Hübner)	LC
52.005 Welsh Clearwing <i>Synanthedon scoliaeformis</i> (Borkhausen)	VU
52.008 Red-tipped Clearwing <i>Synanthedon formicaeformis</i> (Esper)	LC
52.013 Currant Clearwing <i>Synanthedon tipuliformis</i> (Clerck)	LC
52.016 Thrift Clearwing <i>Pyropteron muscaeformis</i> (Esper)	CR
54.002 Forester <i>Adscita statices</i> (Linnaeus)	EN
54.004 Transparent Burnet <i>Zygaena purpuralis</i> (Brünnich)	LC
54.008 Six-spot Burnet <i>Zygaena filipendulae</i> (Linnaeus)	LC
54.009 Narrow-bordered Five-spot Burnet <i>Zygaena loniceræ</i> (Scheven)	VU
65.001 Scalloped Hook-tip <i>Falcaria lacertinaria</i> (Linnaeus)	LC
65.002 Oak Hook-tip <i>Watsonalla binaria</i> (Hufnagel)	NE
65.003 Barred Hook-tip <i>Watsonalla cultraria</i> (Fabricius)	LC
65.005 Pebble Hook-tip <i>Drepana falcataria</i> (Linnaeus)	LC
65.007 Chinese Character <i>Cilix glaucata</i> (Scopoli)	LC
65.008 Peach Blossom <i>Thyatira batis</i> (Linnaeus)	LC
65.009 Buff Arches <i>Habrosyne pyritoides</i> (Hufnagel)	LC
65.011 Poplar Lutestring <i>Tethea or</i> (Denis and Schiffermüller)	NT
65.012 Satin Lutestring <i>Tetheella fluctuosa</i> (Hübner)	LC
65.013 Common Lutestring <i>Ochropacha duplaris</i> (Linnaeus)	LC
65.016 Yellow Horned <i>Achlya flavicornis</i> (Linnaeus)	LC
66.001 December Moth <i>Poecilocampa populi</i> (Linnaeus)	LC
66.002 Pale Eggar <i>Trichiura crataegi</i> (Linnaeus)	LC
66.003 Lackey <i>Malacosoma neustria</i> (Linnaeus)	LC
66.005 Small Eggar <i>Eriogaster lanestris</i> (Linnaeus)	NT
66.007 Oak Eggar <i>Lasiocampa quercus</i> (Linnaeus)	LC
66.008 Fox Moth <i>Macrothylacia rubi</i> (Linnaeus)	LC
66.010 Drinker <i>Euthrix potatoria</i> (Linnaeus)	LC
68.001 Emperor Moth <i>Saturnia pavonia</i> (Linnaeus)	LC
69.001 Lime Hawk-moth <i>Mimas tiliae</i> (Linnaeus)	NE
69.002 Eyed Hawk-moth <i>Smerinthus ocellata</i> (Linnaeus)	LC
69.003 Poplar Hawk-moth <i>Laothoe populi</i> (Linnaeus)	LC
69.004 Convolvulus Hawk-moth <i>Agrius convolvuli</i> (Linnaeus)	NE
69.0041 Pink-spotted Hawk-moth <i>Agrius cingulata</i> (Fabricius)	NE
69.005 Death's-head Hawk-moth <i>Acherontia atropos</i> (Linnaeus)	NE
69.008 Narrow-bordered Bee Hawk-moth <i>Hemaris tityus</i> (Linnaeus)	LC

**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
69.010 Hummingbird Hawk-moth <i>Macroglossum stellatarum</i> (Linnaeus)	NE
69.011 Oleander Hawk-moth <i>Daphnis nerii</i> (Linnaeus)	NE
69.014 Bedstraw Hawk-moth <i>Hyles gallii</i> (Rottemburg)	NE
69.015 Striped Hawk-moth <i>Hyles livornica</i> (Esper)	NE
69.016 Elephant Hawk-moth <i>Deilephila elpenor</i> (Linnaeus)	LC
69.017 Small Elephant Hawk-moth <i>Deilephila porcellus</i> (Linnaeus)	LC
69.018 Silver-striped Hawk-moth <i>Hippotion celerio</i> (Linnaeus)	NE
70.002 Purple-bordered Gold <i>Idaea muricata</i> (Hufnagel)	EN
70.009 Satin Wave <i>Idaea subsericeata</i> (Haworth)	LC
70.011 Single-dotted Wave <i>Idaea dimidiata</i> (Hufnagel)	LC
70.013 Small Fan-footed Wave <i>Idaea biselata</i> (Hufnagel)	LC
70.016 Riband Wave <i>Idaea aversata</i> (Linnaeus)	LC
70.018 Plain Wave <i>Idaea straminata</i> (Borkhausen)	LC
70.023 Mullein Wave <i>Scopula marginepunctata</i> (Goeze)	LC
70.024 Small Blood-vein <i>Scopula imitaria</i> (Hübner)	LC
70.025 Lesser Cream Wave <i>Scopula immutata</i> (Linnaeus)	LC
70.026 Smoky Wave <i>Scopula ternata</i> Schrank	VU
70.027 Cream Wave <i>Scopula floslactata</i> (Haworth)	LC
70.028 Rosy Wave <i>Scopula emutaria</i> (Hübner)	NE
70.029 Blood-vein <i>Timandra comae</i> Schmidt	LC
70.032 Birch Mocha <i>Cyclophora albipunctata</i> (Hufnagel)	LC
70.033 Blair's Mocha <i>Cyclophora puppillaria</i> (Hübner)	NE
70.036 Maiden's Blush <i>Cyclophora punctaria</i> (Linnaeus)	EN
70.037 Clay Triple-lines <i>Cyclophora linearia</i> (Hübner)	LC
70.038 Vestal <i>Rhodometra sacraria</i> (Linnaeus)	NE
70.040 Lead Belle <i>Scotopteryx mucronata</i> (Scopoli)	LC
70.041 July Belle <i>Scotopteryx luridata</i> (Hufnagel)	LC
70.045 Shaded Broad-bar <i>Scotopteryx chenopodiata</i> (Linnaeus)	LC
70.046 Oblique Carpet <i>Orthonama vittata</i> (Borkhausen)	LC
70.047 Gem <i>Nycterosea obstipata</i> (Fabricius)	NE
70.048 Red Carpet <i>Xanthorhoe decoloraria</i> (Esper)	EN
70.049 Garden Carpet <i>Xanthorhoe fluctuata</i> (Linnaeus)	LC
70.051 Red Twin-spot Carpet <i>Xanthorhoe spadicearia</i> (Denis and Schiffermüller)	LC
70.052 Dark-barred Twin-spot Carpet <i>Xanthorhoe ferrugata</i> (Clerck)	LC
70.053 Flame Carpet <i>Xanthorhoe designata</i> (Hufnagel)	LC
70.054 Silver-ground Carpet <i>Xanthorhoe montanata</i> (Denis and Schiffermüller)	LC
70.056 Royal Mantle <i>Catarhoe cuculata</i> (Hufnagel)	VU
70.059 Yellow Shell <i>Camptogramma bilineata</i> (Linnaeus)	NT
70.060 Small Argent & Sable <i>Epirrhoe tristata</i> (Linnaeus)	VU
70.061 Common Carpet <i>Epirrhoe alternata</i> (Müller)	LC
70.063 Galium Carpet <i>Epirrhoe galiata</i> (Denis and Schiffermüller)	LC
70.064 Cloaked Carpet <i>Euphyia biangulata</i> (Haworth)	LC
70.065 Sharp-angled Carpet <i>Euphyia unangulata</i> (Haworth)	LC
70.066 Shoulder Stripe <i>Earophila badiata</i> (Denis and Schiffermüller)	LC

**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
70.067 Streamer <i>Anticlea derivata</i> (Denis and Schiffermüller)	LC
70.068 Beautiful Carpet <i>Mesoleuca albicillata</i> (Linnaeus)	LC
70.069 Dark Spinach <i>Pelurga comitata</i> (Linnaeus)	LC
70.070 Mallow <i>Larentia clavaria</i> (Haworth)	CR
70.071 Yellow-ringed Carpet <i>Entephria flavicinctata</i> (Hübner)	CR
70.072 Grey Mountain Carpet <i>Entephria caesiata</i> (Denis and Schiffermüller)	NT
70.074 July Highflyer <i>Hydriomena furcata</i> (Thunberg)	LC
70.075 May Highflyer <i>Hydriomena impluviata</i> (Denis and Schiffermüller)	LC
70.076 Ruddy Highflyer <i>Hydriomena ruberata</i> (Freyer)	LC
70.077 Pine Carpet <i>Pennithera firmata</i> (Hübner)	LC
70.078 Chestnut-coloured Carpet <i>Thera cognata</i> (Thunberg)	LC
70.079 Spruce Carpet <i>Thera britannica</i> (Turner)	LC
70.081 Grey Pine Carpet <i>Thera obeliscata</i> (Hübner)	LC
70.082 Juniper Carpet <i>Thera juniperata</i> (Linnaeus)	LC
70.084 Blue-bordered Carpet <i>Plemyria rubiginata</i> (Denis and Schiffermüller)	LC
70.085 Barred Yellow <i>Cidaria fulvata</i> (Forster)	LC
70.086 Broken-barred Carpet <i>Electrophaes corylata</i> (Thunberg)	LC
70.087 Purple Bar <i>Cosmorhoe ocellata</i> (Linnaeus)	LC
70.089 Phoenix <i>Eulithis prunata</i> (Linnaeus)	LC
70.090 Chevron <i>Eulithis testata</i> (Linnaeus)	LC
70.091 Northern Spinach <i>Eulithis populata</i> (Linnaeus)	LC
70.092 Spinach <i>Eulithis mellinata</i> (Fabricius)	NE
70.093 Barred Straw <i>Gandaritis pyraliata</i> (Denis and Schiffermüller)	LC
70.094 Small Phoenix <i>Ecliptopera silaceata</i> (Denis and Schiffermüller)	LC
70.095 Red-green Carpet <i>Chloroclysta siterata</i> (Hufnagel)	LC
70.096 Autumn Green Carpet <i>Chloroclysta miata</i> (Linnaeus)	LC
70.097 Common Marbled Carpet <i>Dysstroma truncata</i> (Hufnagel)	LC
70.098 Dark Marbled Carpet <i>Dysstroma citrata</i> (Linnaeus)	LC
70.099 Beech-green carpet <i>Colostygia olivata</i> (Denis and Schiffermüller)	EN
70.100 Green Carpet <i>Colostygia pectinataria</i> (Knoch)	LC
70.101 Mottled Grey <i>Colostygia multistrigaria</i> (Haworth)	LC
70.102 Striped Twin-spot Carpet <i>Coenotephria salicata</i> (Denis and Schiffermüller)	LC
70.103 Water Carpet <i>Lampropteryx suffumata</i> (Denis and Schiffermüller)	LC
70.105 Northern Winter Moth <i>Operophtera fagata</i> (Scharfenberg)	LC
70.106 Winter Moth <i>Operophtera brumata</i> (Linnaeus)	LC
70.107 November Moth <i>Epirrita dilutata</i> (Denis and Schiffermüller)	LC
70.108 Pale November Moth <i>Epirrita christyi</i> (Allen)	LC
70.109 Autumnal Moth <i>Epirrita autumnata</i> (Borkhausen)	LC
70.110 Small Autumnal Moth <i>Epirrita filigrammaria</i> (Herrich-Schäffer)	VU
70.111 Small White Wave <i>Asthena albulata</i> (Hufnagel)	LC
70.112 Dingy Shell <i>Euchoeca nebulata</i> (Scopoli)	NE
70.113 Waved Carpet <i>Hydrelia sylvata</i> (Denis and Schiffermüller)	LC
70.114 Small Yellow Wave <i>Hydrelia flammeolaria</i> (Hufnagel)	LC
70.115 Welsh Wave <i>Venusia cambrica</i> Curtis	LC

**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
70.118 Brown Scallop <i>Philereme vetulata</i> (Denis and Schiffermüller)	LC
70.119 Dark Umber <i>Philereme transversata</i> (Hufnagel)	LC
70.120 Argent & Sable <i>Rheumaptera hastata</i> (Linnaeus)	VU
70.121 Scallop Shell <i>Hydria undulata</i> (Linnaeus)	LC
70.123 Tissue <i>Triphosa dubitata</i> (Linnaeus)	NT
70.124 Barberry Carpet <i>Pareulype berberata</i> (Denis and Schiffermüller)	RE
70.125 Slender-striped Rufous <i>Coenocalpe lapidata</i> (Hübner)	RE
70.126 Small Waved Umber <i>Horisme vitalbata</i> (Denis and Schiffermüller)	NE
70.127 Fern <i>Horisme tersata</i> (Denis and Schiffermüller)	NE
70.130 Chimney Sweeper <i>Odezia atrata</i> (Linnaeus)	VU
70.131 Twin-spot Carpet <i>Mesotype didymata</i> (Linnaeus)	LC
70.132 Rivulet <i>Perizoma affinitata</i> (Stephens)	LC
70.133 Small Rivulet <i>Perizoma alchemillata</i> (Linnaeus)	LC
70.134 Barred Rivulet <i>Perizoma bifaciata</i> (Haworth)	LC
70.135 Heath Rivulet <i>Perizoma minorata</i> (Treitshke)	VU
70.136 Pretty Pinion <i>Perizoma blandiata</i> (Denis and Schiffermüller)	LC
70.137 Grass Rivulet <i>Perizoma albulata</i> (Denis and Schiffermüller)	LC
70.138 Sandy Carpet <i>Perizoma flavofasciata</i> (Thunberg)	NT
70.139 Barred Carpet <i>Martania taeniata</i> (Stephens)	LC
70.141 Double-striped Pug <i>Gymnoscelis rufifasciata</i> (Haworth)	LC
70.142 V-Pug <i>Chloroclystis v-ata</i> (Haworth)	LC
70.144 Green Pug <i>Pasiphila rectangulata</i> (Linnaeus)	LC
70.145 Bilberry Pug <i>Pasiphila debiliata</i> (Hübner)	LC
70.146 Haworth's Pug <i>Eupithecia haworthiata</i> Doubleday	LC
70.147 Slender Pug <i>Eupithecia tenuiata</i> (Hübner)	LC
70.149 Cloaked Pug <i>Eupithecia abietaria</i> (Goeze)	LC
70.150 Toadflax Pug <i>Eupithecia linariata</i> (Denis and Schiffermüller)	NE
70.151 Foxglove Pug <i>Eupithecia pulchellata</i> Stephens	LC
70.153 Lead-coloured Pug <i>Eupithecia plumbeolata</i> (Haworth)	LC
70.154 Marsh Pug <i>Eupithecia pygmaeata</i> (Hübner)	VU
70.155 Netted Pug <i>Eupithecia venosata</i> (Fabricius)	LC
70.156 Brindled Pug <i>Eupithecia abbreviata</i> Stephens	LC
70.157 Oak-tree Pug <i>Eupithecia dodoneata</i> Guenée	LC
70.158 Juniper Pug <i>Eupithecia pusillata</i> (Denis and Schiffermüller)	LC
70.159 Cypress Pug <i>Eupithecia phoeniceata</i> (Rambur)	NE
70.160 White-spotted Pug <i>Eupithecia tripunctaria</i> Herrich-Schäffer	LC
70.161 Golden-rod Pug <i>Eupithecia virgaureata</i> Doubleday	LC
70.162 Dwarf Pug <i>Eupithecia tantillaria</i> Boisduval	LC
70.163 Larch Pug <i>Eupithecia lariciata</i> (Freyer)	LC
70.165 Pimpinel Pug <i>Eupithecia pimpinellata</i> (Hübner)	LC
70.166 Plain Pug <i>Eupithecia simpliciatata</i> (Haworth)	VU
70.168 Narrow-winged Pug <i>Eupithecia nanata</i> (Hübner)	LC
70.169 Angle-barred/Ash Pug <i>Eupithecia innotata</i> (Hufnagel)	LC
70.171 Ochreous Pug <i>Eupithecia indigata</i> (Hübner)	LC



**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
70.172 Thyme Pug <i>Eupithecia distinctaria</i> Herrich-Schäffer	LC
70.173 Lime-speck Pug <i>Eupithecia centaureata</i> (Denis and Schiffermüller)	LC
70.175 Triple-spotted Pug <i>Eupithecia trisignaria</i> Herrich-Schäffer	LC
70.176 Freyer's/Mere's Pug <i>Eupithecia intricata</i> (Zetterstedt)	VU
70.177 Satyr Pug <i>Eupithecia satyrata</i> (Hübner)	LC
70.179 Wormwood Pug <i>Eupithecia absinthiata</i> (Clerck)	LC
70.180 Bleached Pug <i>Eupithecia expallidata</i> Doubleday	NE
70.181 Valerian Pug <i>Eupithecia valerianata</i> (Hübner)	LC
70.182 Currant Pug <i>Eupithecia assimilata</i> Doubleday	LC
70.183 Common Pug <i>Eupithecia vulgata</i> (Haworth)	LC
70.184 Mottled Pug <i>Eupithecia exigua</i> (Hübner)	LC
70.185 Campanula Pug <i>Eupithecia denotata</i> (Hübner)	VU
70.187 Tawny Speckled Pug <i>Eupithecia icterata</i> (de Villers)	LC
70.188 Bordered Pug <i>Eupithecia succenturiata</i> (Linnaeus)	VU
70.189 Shaded Pug <i>Eupithecia subumbrata</i> (Denis and Schiffermüller)	LC
70.190 Grey Pug <i>Eupithecia subfuscata</i> (Haworth)	LC
70.191 Manchester Treble-bar <i>Carsia sororiata</i> (Hübner)	CR
70.192 Treble-bar <i>Aplocera plagiata</i> (Linnaeus)	LC
70.195 Streak <i>Chesias legatella</i> (Denis and Schiffermüller)	LC
70.196 Broom-tip <i>Chesias rufata</i> (Fabricius)	NE
70.198 Seraphim <i>Lobophora halterata</i> (Hufnagel)	LC
70.199 Small Seraphim <i>Pterapherapteryx sexualata</i> (Retzius)	LC
70.200 Yellow-barred Brindle <i>Acasis viretata</i> (Hübner)	LC
70.202 Early Tooth-striped <i>Trichopteryx carpinata</i> (Borkhausen)	LC
70.205 Magpie Moth <i>Abraxas grossulariata</i> (Linnaeus)	LC
70.206 Clouded Magpie <i>Abraxas sylvata</i> (Scopoli)	LC
70.207 Clouded Border <i>Lomaspilis marginata</i> (Linnaeus)	LC
70.208 Scorched Carpet <i>Ligdia adustata</i> (Denis and Schiffermüller)	LC
70.211 Peacock Moth <i>Macaria notata</i> (Linnaeus)	LC
70.212 Sharp-angled Peacock <i>Macaria alternata</i> (Denis and Schiffermüller)	LC
70.214 Tawny-barred Angle <i>Macaria liturata</i> (Clerck)	LC
70.215 V-Moth <i>Macaria wauaria</i> (Linnaeus)	RE
70.218 Latticed Heath <i>Chiasmia clathrata</i> (Linnaeus)	LC
70.221 Little Thorn <i>Cepphis advenaria</i> (Hübner)	LC
70.222 Brown Silver-line <i>Petrophora chlorosata</i> (Scopoli)	LC
70.223 Barred Umber <i>Plagodis pulveraria</i> (Linnaeus)	LC
70.224 Scorched Wing <i>Plagodis dolabraria</i> (Linnaeus)	LC
70.226 Brimstone Moth <i>Opisthograptis luteolata</i> (Linnaeus)	LC
70.227 Bordered Beauty <i>Epione repandaria</i> (Hufnagel)	LC
70.229 Speckled Yellow <i>Pseudopanthera macularia</i> (Linnaeus)	LC
70.230 Orange Moth <i>Angerona prunaria</i> (Linnaeus)	LC
70.231 Lilac Beauty <i>Apeira syringaria</i> (Linnaeus)	LC
70.232 Large Thorn <i>Ennomos autumnaria</i> (Werneburg)	NE
70.233 August Thorn <i>Ennomos quercinaria</i> (Hufnagel)	LC

**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
70.234 Canary-shouldered Thorn <i>Ennomos alniaria</i> (Linnaeus)	LC
70.235 Dusky Thorn <i>Ennomos fuscantaria</i> (Haworth)	NE
70.236 September Thorn <i>Ennomos erosaria</i> (Denis and Schiffermüller)	RE
70.237 Early Thorn <i>Selenia dentaria</i> (Fabricius)	LC
70.238 Lunar Thorn <i>Selenia lunularia</i> (Hübner)	LC
70.240 Scalloped Hazel <i>Odontopera bidentata</i> (Clerck)	LC
70.241 Scalloped Oak <i>Crocallis elinguaris</i> (Linnaeus)	LC
70.243 Swallow-tailed Moth <i>Ourapteryx sambucaria</i> (Linnaeus)	LC
70.244 Feathered Thorn <i>Colotois pennaria</i> (Linnaeus)	LC
70.245 March Moth <i>Alsophila aescularia</i> (Denis and Schiffermüller)	LC
70.247 Pale Brindled Beauty <i>Phigalia pilosaria</i> (Denis and Schiffermüller)	LC
70.248 Brindled Beauty <i>Lycia hirtaria</i> (Clerck)	LC
70.250 Belted Beauty <i>Lycia zonaria</i> (Denis and Schiffermüller)	LC
70.251 Oak Beauty <i>Biston strataria</i> (Hufnagel)	LC
70.252 Peppered Moth <i>Biston betularia</i> (Linnaeus)	LC
70.253 Spring Usher <i>Agriopis leucophaearia</i> (Denis and Schiffermüller)	LC
70.254 Scarce Umber <i>Agriopis aurantiaria</i> (Hübner)	LC
70.255 Dotted Border <i>Agriopis marginaria</i> (Fabricius)	LC
70.256 Mottled Umber <i>Erannis defoliaria</i> (Clerck)	LC
70.257 Waved Umber <i>Menophra abruptaria</i> (Thunberg)	NE
70.258 Willow Beauty <i>Peribatodes rhomboidaria</i> (Denis and Schiffermüller)	LC
70.262 Bordered Grey <i>Selidosema brunnearia</i> (de Villers)	LC
70.263 Ringed Carpet <i>Cleora cinctaria</i> (Denis and Schiffermüller)	LC
70.264 Satin Beauty <i>Deileptenia ribeata</i> (Clerck)	LC
70.265 Mottled Beauty <i>Alcis repandata</i> (Linnaeus)	LC
70.266 Dotted Carpet <i>Alcis jubata</i> (Thunberg)	VU
70.268 Pale Oak Beauty <i>Hypomecis punctinalis</i> (Scopoli)	NE
70.270 Engrailed <i>Ectropis crepuscularia</i> (Denis and Schiffermüller)	LC
70.272 Square Spot <i>Paradarisa consonaria</i> (Hübner)	LC
70.274 Grey Birch <i>Aethalura punctulata</i> (Denis and Schiffermüller)	LC
70.275 Common Heath <i>Ematurga atomaria</i> (Linnaeus)	LC
70.276 Bordered White <i>Bupalus piniaria</i> (Linnaeus)	LC
70.277 Common White Wave <i>Cabera pusaria</i> (Linnaeus)	LC
70.278 Common Wave <i>Cabera exanthemata</i> (Scopoli)	LC
70.279 White-pinion Spotted <i>Lomographa bimaculata</i> (Fabricius)	LC
70.280 Clouded Silver <i>Lomographa temerata</i> (Denis and Schiffermüller)	LC
70.282 Early Moth <i>Theria primaria</i> (Haworth)	LC
70.283 Light Emerald <i>Campaea margaritaria</i> (Linnaeus)	LC
70.284 Barred Red <i>Hylaea fasciaria</i> (Linnaeus)	LC
70.285 Scotch Annulet <i>Gnophos obfuscata</i> (Denis and Schiffermüller)	LC
70.286 Irish Annulet <i>Gnophos dumetata</i> Treitschke	EN
70.287 Annulet <i>Charissa obscurata</i> (Denis and Schiffermüller)	LC
70.288 Brussels Lace <i>Cleorodes lichenaria</i> (Hufnagel)	LC
70.292 Grey Scalloped Bar <i>Dyscia fagaria</i> (Thunberg)	LC

**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
70.293 Straw Belle <i>Aspitates gilvaria</i> (Denis and Schiffermüller)	LC
70.295 Grass Wave <i>Perconia strigillaria</i> (Hübner)	LC
70.297 Grass Emerald <i>Pseudoterpna pruinata</i> (Hufnagel)	LC
70.299 Large Emerald <i>Geometra papilionaria</i> (Linnaeus)	LC
70.302 Small Emerald <i>Hemistola chrysoprasaria</i> (Esper)	NE
70.303 Little Emerald <i>Jodis lactearia</i> (Linnaeus)	LC
70.305 Common Emerald <i>Hemithea aestivaria</i> (Hübner)	LC
71.003 Puss Moth <i>Cerura vinula</i> (Linnaeus)	LC
71.005 Sallow Kitten <i>Furcula furcula</i> (Clerck)	LC
71.006 Alder Kitten <i>Furcula bicuspis</i> (Borkhausen)	DD
71.007 Poplar Kitten <i>Furcula bifida</i> (Brahm)	NE
71.009 Lobster Moth <i>Stauropus fagi</i> (Linnaeus)	LC
71.010 Marbled Brown <i>Drymonia dodonaea</i> (Denis and Schiffermüller)	NE
71.011 Lunar Marbled Brown <i>Drymonia ruficornis</i> (Hufnagel)	LC
71.012 Iron Prominent <i>Notodonta dromedarius</i> (Linnaeus)	LC
71.013 Pebble Prominent <i>Notodonta ziczac</i> (Linnaeus)	LC
71.017 Swallow Prominent <i>Pheosia tremula</i> (Clerck)	LC
71.018 Lesser Swallow Prominent <i>Pheosia gnoma</i> (Fabricius)	LC
71.019 White Prominent <i>Leucodonta bicoloria</i> (Denis and Schiffermüller)	EN
71.020 Pale Prominent <i>Pterostoma palpina</i> (Clerck)	LC
71.021 Coxcomb Prominent <i>Ptilodon capucina</i> (Linnaeus)	LC
71.023 Scarce Prominent <i>Odontosia carmelita</i> (Esper)	LC
71.025 Buff-tip <i>Phalera bucephala</i> (Linnaeus)	LC
71.027 Chocolate-tip <i>Clostera curtula</i> (Linnaeus)	NE
71.028 Small Chocolate-tip <i>Clostera pigra</i> (Hufnagel)	NT
72.001 Herald <i>Scoliopteryx libatrix</i> (Linnaeus)	LC
72.002 Straw Dot <i>Rivula sericealis</i> (Scopoli)	LC
72.003 Snout <i>Hypena proboscidalis</i> (Linnaeus)	LC
72.006 Bloxworth Snout <i>Hypena obsitalis</i> (Hübner)	NE
72.007 Beautiful Snout <i>Hypena crassalis</i> (Fabricius)	LC
72.009 White Satin Moth <i>Leucoma salicis</i> (Linnaeus)	LC
72.010 Black Arches <i>Lymantria monacha</i> (Linnaeus)	VU
72.011 Gypsy Moth <i>Lymantria dispar</i> (Linnaeus)	NE
72.013 Yellow-tail <i>Euproctis similis</i> (Fuessly)	LC
72.015 Pale Tussock <i>Calliteara pudibunda</i> (Linnaeus)	LC
72.016 Dark Tussock <i>Dicallomera fascelina</i> (Linnaeus)	NT
72.017 Vapourer <i>Orgyia antiqua</i> (Linnaeus)	LC
72.019 Buff Ermine <i>Spilosoma lutea</i> (Hufnagel)	LC
72.020 White Ermine <i>Spilosoma lubricipeda</i> (Linnaeus)	LC
72.022 Muslin Moth <i>Diaphora mendica</i> (Clerck)	LC
72.023 Clouded Buff <i>Diacrisia sannio</i> (Linnaeus)	LC
72.024 Ruby Tiger <i>Phragmatobia fuliginosa</i> (Linnaeus)	LC
72.025 Wood Tiger <i>Parasemia plantaginis</i> (Linnaeus)	NT
72.0253 Banana Stowaway <i>Antichloris eriphia</i> (Fabricius)	NE

**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
72.0255 <i>Antichloris steinbachi</i> Rothschild	NE
72.026 Garden Tiger <i>Arctia caja</i> (Linnaeus)	LC
72.031 Cinnabar <i>Tyria jacobaeae</i> (Linnaeus)	LC
72.034 Crimson Speckled <i>Utetheisa pulchella</i> (Linnaeus)	NE
72.035 Rosy Footman <i>Miltochrista miniata</i> (Forster)	VU
72.036 Muslin Footman <i>Nudaria mundana</i> (Linnaeus)	LC
72.037 Round-winged Muslin <i>Thumatha senex</i> (Hübner)	LC
72.038 Four-dotted Footman <i>Cybosia mesomella</i> (Linnaeus)	NE
72.041 Four-spotted Footman <i>Lithosia quadra</i> (Linnaeus)	LC
72.042 Red-necked Footman <i>Atolmis rubricollis</i> (Linnaeus)	LC
72.043 Buff Footman <i>Eilema depressa</i> (Esper)	LC
72.044 Dingy Footman <i>Eilema griseola</i> (Hübner)	LC
72.045 Common Footman <i>Eilema lurideola</i> (Zincken)	LC
72.046 Scarce Footman <i>Eilema complana</i> (Linnaeus)	LC
72.047 Hoary Footman <i>Eilema caniola</i> (Hübner)	NT
72.049 Orange Footman <i>Eilema sororcula</i> (Hufnagel)	NE
72.050 Dew Moth <i>Setina irrorella</i> (Linnaeus)	LC
72.053 Fan-foot <i>Herminia tarsipennalis</i> (Treitschke)	LC
72.055 Small Fan-foot <i>Herminia grisealis</i> (Denis and Schiffermüller)	LC
72.056 Common Fan-foot <i>Pechipogo strigilata</i> (Linnaeus)	RE
72.060 Marsh Oblique-barred <i>Hyphenodes humidalis</i> Doubleday	LC
72.061 Pinion-streaked Snout <i>Schrankia costaestrigalis</i> (Stephens)	LC
72.062 White-line Snout <i>Schrankia taenialis</i> (Hübner)	NE
72.067 Small Purple-barred <i>Phytometra viridaria</i> (Clerck)	NT
72.072 Purple Marbled <i>Eublemma ostrina</i> (Hübner)	NE
72.073 Small Marbled <i>Eublemma parva</i> (Hübner)	NE
72.076 Clifden Nonpareil <i>Catocala fraxini</i> (Linnaeus)	NE
72.078 Red Underwing <i>Catocala nupta</i> (Linnaeus)	LC
72.083 Burnet Companion <i>Euclidia glyphica</i> (Linnaeus)	LC
72.084 Mother Shipton <i>Euclidia mi</i> (Clerck)	LC
72.086 Lunar Double-stripe <i>Minucia lunaris</i> (Denis and Schiffermüller)	NE
73.001 Spectacle <i>Abrostola tripartita</i> (Hufnagel)	LC
73.002 Dark Spectacle <i>Abrostola triplasia</i> (Linnaeus)	LC
73.003 Ni Moth <i>Trichoplusia ni</i> (Hübner)	NE
73.004 Slender Burnished Brass <i>Thysanoplusia orichalcea</i> (Fabricius)	NE
73.009 Tunbridge Wells Gem <i>Chrysodeixis acuta</i> (Walker)	NE
73.012 Burnished Brass <i>Diachrysia chrysitis</i> (Linnaeus)	LC
73.013 Purple-shaded Gem <i>Euchalcia variabilis</i> (Piller)	NE
73.014 Golden Plusia <i>Polychrysia moneta</i> (Fabricius)	NE
73.015 Silver Y <i>Autographa gamma</i> (Linnaeus)	NE
73.016 Beautiful Golden Y <i>Autographa pulchrina</i> (Haworth)	LC
73.017 Plain Golden Y <i>Autographa jota</i> (Linnaeus)	LC
73.018 Gold Spangle <i>Autographa bractea</i> (Denis and Schiffermüller)	LC
73.021 Scarce Silver Y <i>Syngrapha interrogationis</i> (Linnaeus)	LC

**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
73.022 Gold Spot <i>Plusia festucae</i> (Linnaeus)	LC
73.023 Lempke's Gold Spot <i>Plusia putnami</i> (Grote)	NE
73.024 Marbled White Spot <i>Deltote pygarga</i> (Hufnagel)	LC
73.026 Silver Hook <i>Deltote uncula</i> (Clerck)	LC
73.027 Silver Barred <i>Deltote bankiana</i> (Fabricius)	LC
73.032 Nut-tree Tussock <i>Colocasia coryli</i> (Linnaeus)	LC
73.033 Figure of Eight <i>Diloba caeruleocephala</i> (Linnaeus)	NT
73.036 Alder Moth <i>Acronicta alni</i> (Linnaeus)	LC
73.038 Grey Dagger <i>Acronicta psi</i> (Linnaeus)	LC
73.039 Sycamore <i>Acronicta aceris</i>	NE
73.040 Miller <i>Acronicta leporina</i> (Linnaeus)	LC
73.042 Light Knot Grass <i>Acronicta menyanthidis</i> (Esper)	VU
73.043 Scarce Dagger <i>Acronicta auricoma</i> (Denis and Schiffermüller)	NE
73.044 Sweet Gale Moth <i>Acronicta cinerea</i> (Hufnagel)	LC
73.045 Knot Grass <i>Acronicta rumicis</i> (Linnaeus)	LC
73.046 Poplar Grey <i>Subacronicta megacephala</i> (Denis and Schiffermüller)	LC
73.047 Coronet <i>Craniophora ligustri</i> (Denis and Schiffermüller)	LC
73.048 Small Yellow Underwing <i>Panemeria tenebrata</i> (Scopoli)	NE
73.050 Wormwood <i>Cucullia absinthii</i> (Linnaeus)	RE
73.052 Shark <i>Cucullia umbratica</i> (Linnaeus)	LC
73.053 Chamomile Shark <i>Cucullia chamomillae</i> (Denis and Schiffermüller)	LC
73.058 Mullein <i>Cucullia verbasci</i> (Linnaeus)	RE
73.061 Anomalous <i>Stilbia anomala</i> (Haworth)	LC
73.062 Copper Underwing <i>Amphipyra pyramidea</i> (Linnaeus)	LC
73.063 Svensson's Copper Underwing <i>Amphipyra berbera</i> Rungs	NE
73.064 Mouse Moth <i>Amphipyra tragopoginis</i> (Clerck)	NT
73.065 Sprawler <i>Asteroscopus sphinx</i> (Hufnagel)	NT
73.068 Green-brindled Crescent <i>Allophyes oxyacanthae</i> (Linnaeus)	LC
73.069 Early Grey <i>Xylocampa areola</i> (Esper)	LC
73.070 Bordered Sallow <i>Pyrrhia umbra</i> (Hufnagel)	LC
73.071 Spotted Clover Moth <i>Protoschinia scutosa</i> (Denis and Schiffermüller)	NE
73.074 Bordered Straw <i>Heliothis peltigera</i> (Denis and Schiffermüller)	NE
73.075 Eastern Bordered Straw <i>Heliothis nubigera</i> Herrich-Schäffer	NE
73.076 Scarce Bordered Straw <i>Helicoverpa armigera</i> (Hübner)	NE
73.084 Marbled Beauty <i>Bryophila domestica</i> (Hufnagel)	LC
73.085 Marbled Green <i>Nyctobrya muralis</i> (Forster)	LC
73.087 Small Mottled Willow <i>Spodoptera exigua</i> (Hübner)	NE
73.088 Dark Mottled Willow <i>Spodoptera cilium</i> Guenée	NE
73.092 Mottled Rustic <i>Caradrina morpheus</i> (Hufnagel)	LC
73.095 Pale Mottled Willow <i>Caradrina clavipalpis</i> (Scopoli)	LC
73.096 Uncertain <i>Hoplodrina octogenaria</i> (Goeze)	LC
73.097 Rustic <i>Hoplodrina blanda</i> (Denis and Schiffermüller)	LC
73.099 Vine's Rustic <i>Hoplodrina ambigua</i> (Denis and Schiffermüller)	NE
73.100 Silky Wainscot <i>Chilodes maritima</i> (Tauscher)	LC



**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
73.101 Treble Lines <i>Charanyca trigrammica</i> (Hufnagel)	LC
73.102 Brown Rustic <i>Rusina ferruginea</i> (Esper)	LC
73.107 Old Lady <i>Mormo maura</i> (Linnaeus)	LC
73.109 Straw Underwing <i>Thalpophila matura</i> (Hufnagel)	LC
73.110 Saxon <i>Hyppa rectilinea</i> (Esper)	VU
73.113 Angle Shades <i>Phlogophora meticulosa</i> (Linnaeus)	LC
73.114 Small Angle Shades <i>Euplexia lucipara</i> (Linnaeus)	LC
73.116 Burren Green <i>Calamia tridens</i> (Hufnagel)	NT
73.118 Haworth's Minor <i>Celaena haworthii</i> (Curtis)	LC
73.119 Crescent <i>Helotropha leucostigma</i> (Hübner)	LC
73.121 Frosted Orange <i>Gortyna flavago</i> (Denis and Schiffermüller)	LC
73.123 Rosy Rustic <i>Hydraecia micacea</i> (Esper)	LC
73.126 Saltern Ear <i>Amphipoea fucosa</i> (Freyer)	LC
73.127 Large Ear <i>Amphipoea lucens</i> (Freyer)	LC
73.128 Ear Moth <i>Amphipoea oculea</i> (Linnaeus)	LC
73.129 Crinan Ear <i>Amphipoea crinanensis</i> (Burrows)	LC
73.131 Flounced Rustic <i>Luperina testacea</i> (Denis and Schiffermüller)	LC
73.132 Sandhill Rustic <i>Luperina nickerlii</i> (Freyer)	EN
73.134 Large Wainscot <i>Rhizedra lutosa</i> (Hübner)	LC
73.136 Bulrush Wainscot <i>Nonagria typhae</i> (Thunberg)	LC
73.139 Twin-spotted Wainscot <i>Lenisa geminipuncta</i> (Haworth)	VU
73.141 Brown-veined Wainscot <i>Archanara dissoluta</i> (Treitschke)	NE
73.142 Small Rufous <i>Coenobia rufa</i> (Haworth)	LC
73.144 Small Wainscot <i>Denticucullus pygmina</i> (Haworth)	LC
73.146 Least Minor <i>Photedes captiuncula</i> (Treitschke)	LC
73.147 Small Dotted Buff <i>Photedes minima</i> (Haworth)	LC
73.151 Webb's Wainscot <i>Globia sparganii</i> (Esper)	VU
73.152 Rush Wainscot <i>Globia algae</i> (Esper)	LC
73.154 Dusky Brocade <i>Apamea remissa</i> (Hübner)	LC
73.155 Clouded Brindle <i>Apamea epomidion</i> (Haworth)	LC
73.156 Clouded-bordered Brindle <i>Apamea crenata</i> (Hufnagel)	LC
73.157 Large Nutmeg <i>Apamea anceps</i> (Denis and Schiffermüller)	NE
73.158 Rustic Shoulder-knot <i>Apamea sordens</i> (Hufnagel)	LC
73.159 Small Clouded Brindle <i>Apamea unanimis</i> (Hübner)	LC
73.160 Slender Brindle <i>Apamea scolopacina</i> (Esper)	LC
73.161 Crescent Striped <i>Apamea oblonga</i> (Haworth)	EN
73.162 Dark Arches <i>Apamea monoglypha</i> (Hufnagel)	LC
73.163 Light Arches <i>Apamea lithoxylaea</i> (Denis and Schiffermüller)	LC
73.164 Reddish Light Arches <i>Apamea sublustris</i> (Esper)	NT
73.165 Confused <i>Apamea furva</i> (Denis and Schiffermüller)	LC
73.168 Double Lobed <i>Lateroligia ophiogramma</i> (Esper)	LC
73.169 Common Rustic <i>Mesapamea secalis</i> (Linnaeus)	LC
73.170 Lesser Common Rustic <i>Mesapamea didyma</i> (Esper)	LC
73.171 Rosy Minor <i>Litoligia literosa</i> (Haworth)	LC

**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
73.172 Cloaked Minor <i>Mesoligia furuncula</i> (Denis and Schiffermüller)	LC
73.173 Marbled Minor <i>Oligia strigilis</i> (Linnaeus)	DD
73.174 Tawny Marbled Minor <i>Oligia latruncula</i> (Denis and Schiffermüller)	LC
73.175 Rufous Minor <i>Oligia versicolor</i> (Borkhausen)	LC
73.176 Middle-barred Minor <i>Oligia fasciuncula</i> (Haworth)	LC
73.179 Orange Sallow <i>Tiliacea citrigo</i> (Linnaeus)	LC
73.181 Pink-barred Sallow <i>Xanthia togata</i> (Esper)	LC
73.182 Sallow <i>Cirrhia icteritia</i> (Hufnagel)	LC
73.186 Beaded Chestnut <i>Agrochola lychnidis</i> (Denis and Schiffermüller)	LC
73.187 Brown-spot Pinion <i>Agrochola litura</i> (Linnaeus)	NE
73.188 Flounced Chestnut <i>Agrochola helvola</i> (Linnaeus)	LC
73.189 Red-line Quaker <i>Agrochola lota</i> (Clerck)	LC
73.190 Yellow-line Quaker <i>Agrochola macilenta</i> (Hübner)	LC
73.192 Brick <i>Agrochola circellaris</i> (Hufnagel)	LC
73.193 Lunar Underwing <i>Omphaloscelis lunosa</i> (Haworth)	LC
73.194 Chestnut <i>Conistra vaccinii</i> (Linnaeus)	LC
73.195 Dark Chestnut <i>Conistra ligula</i> (Esper)	LC
73.200 Tawny Pinion <i>Lithophane semibrunnea</i> (Haworth)	NE
73.201 Pale Pinion <i>Lithophane socia</i> (Hufnagel)	LC
73.202 Grey Shoulder-knot <i>Lithophane ornitopus</i> (Hufnagel)	LC
73.206 Blair's Shoulder-knot <i>Lithophane leautieri</i> (Boisduval)	LC
73.208 Sword-grass <i>Xylena exsoleta</i> (Linnaeus)	RE
73.209 Red Sword-grass <i>Xylena vetusta</i> (Hübner)	LC
73.210 Satellite <i>Eupsilia transversa</i> (Hufnagel)	LC
73.211 Angle-striped Sallow <i>Enargia paleacea</i> (Esper)	DD
73.213 Olive <i>Ipimorpha subtusa</i> (Denis and Schiffermüller)	LC
73.215 Lesser-spotted Pinion <i>Cosmia affinis</i> (Linnaeus)	NE
73.216 Dun-bar <i>Cosmia trapezina</i> (Linnaeus)	LC
73.219 Centre-barred Sallow <i>Atethmia centrigo</i> (Haworth)	LC
73.220 Minor Shoulder-knot <i>Brachylomia viminalis</i> (Fabricius)	VU
73.221 Suspected <i>Parastichtis suspecta</i> (Hübner)	RE
73.222 Dingy Shears <i>Apterogeton ypsilon</i> (Denis and Schiffermüller)	LC
73.224 Merveille du Jour <i>Griposia aprilina</i> (Linnaeus)	LC
73.225 Brindled Green <i>Dryobotodes eremita</i> (Fabricius)	LC
73.228 Grey Chi <i>Antitype chi</i> (Linnaeus)	LC
73.230 Feathered Brindle <i>Aporophyla australis</i> (Boisduval)	VU
73.232 Northern Deep-brown Dart <i>Aporophyla lueneburgensis</i> (Freyer)	LC
73.233 Black Rustic <i>Aporophyla nigra</i> (Haworth)	LC
73.234 Brindled Ochre <i>Dasypolia templi</i> (Thunberg)	LC
73.235 Feathered Ranunculus <i>Polymixis lichenea</i> (Hübner)	LC
73.236 Black-banded <i>Polymixis xanthomista</i> (Hübner)	VU
73.238 Dark Brocade <i>Mniotype adusta</i> (Esper)	LC
73.241 Pine Beauty <i>Panolis flammea</i> (Denis and Schiffermüller)	LC
73.242 Clouded Drab <i>Orthosia incerta</i> (Hufnagel)	LC

**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
73.243 Blossom Underwing <i>Orthosia miniosa</i> (Denis and Schiffermüller)	RE
73.244 Common Quaker <i>Orthosia cerasi</i> (Fabricius)	LC
73.245 Small Quaker <i>Orthosia cruda</i> (Denis and Schiffermüller)	LC
73.246 Lead-coloured Drab <i>Orthosia populeti</i> (Fabricius)	VU
73.247 Powdered Quaker <i>Orthosia gracilis</i> (Denis and Schiffermüller)	LC
73.248 Northern Drab <i>Orthosia opima</i> (Hübner)	VU
73.249 Hebrew Character <i>Orthosia gothica</i> (Linnaeus)	LC
73.250 Twin-spotted Quaker <i>Anorthoa munda</i> (Denis and Schiffermüller)	LC
73.252 Hedge Rustic <i>Tholera cespitis</i> (Denis and Schiffermüller)	LC
73.253 Feathered Gothic <i>Tholera decimalis</i> (Poda)	CR
73.254 Antler Moth <i>Cerapteryx graminis</i> (Linnaeus)	LC
73.255 Nutmeg <i>Anarta trifolii</i> (Hufnagel)	NE
73.257 Beautiful Yellow Underwing <i>Anarta myrtilli</i> (Linnaeus)	LC
73.259 Pale Shining Brown <i>Polia bombycina</i> (Hufnagel)	RE
73.261 Grey Arches <i>Polia nebulosa</i> (Hufnagel)	LC
73.264 Pale-shouldered Brocade <i>Lacanobia thalassina</i> (Hufnagel)	LC
73.265 Beautiful Brocade <i>Lacanobia contigua</i> (Denis and Schiffermüller)	LC
73.266 Dog's Tooth <i>Lacanobia suasa</i> (Denis and Schiffermüller)	NT
73.267 Bright-line Brown-eye <i>Lacanobia oleracea</i> (Linnaeus)	LC
73.270 Dot Moth <i>Melanchnra persicariae</i> (Linnaeus)	LC
73.271 Broom Moth <i>Ceramica pisi</i> (Linnaeus)	LC
73.272 Glauous Shears <i>Papestra biren</i> (Goeze)	LC
73.273 Shears <i>Hada plebeja</i> (Linnaeus)	LC
73.274 Cabbage Moth <i>Mamestra brassicae</i> (Linnaeus)	LC
73.275 White Colon <i>Sideridis turbida</i> (Esper)	LC
73.276 Champion <i>Sideridis rivularis</i> (Fabricius)	LC
73.277 Bordered Gothic <i>Sideridis reticulata</i> (Goeze)	LC
73.278 Barrett's Marbled Coronet <i>Conisania andalusica</i> (Staudinger)	LC
73.279 Broad-barred White <i>Hecatera bicolorata</i> (Hufnagel)	LC
73.281 Lychnis <i>Hadena bicurris</i> (Hufnagel)	LC
73.283 Marbled Coronet <i>Hadena confusa</i> (Hufnagel)	LC
73.285 Grey <i>Hadena caesia</i> (Denis and Schiffermüller)	LC
73.286 Pod Lover <i>Hadena perplexa</i> (Denis and Schiffermüller)	LC
73.288 Double Line <i>Mythimna turca</i> (Linnaeus)	NE
73.289 Striped Wainscot <i>Mythimna pudorina</i> (Denis and Schiffermüller)	LC
73.290 Brown-line Bright-eye <i>Mythimna conigera</i> (Denis and Schiffermüller)	LC
73.291 Common Wainscot <i>Mythimna pallens</i> (Linnaeus)	LC
73.293 Smoky Wainscot <i>Mythimna impura</i> (Hübner)	LC
73.294 Southern Wainscot <i>Mythimna straminea</i> (Treitschke)	LC
73.295 Delicate <i>Mythimna vitellina</i> (Hübner)	NE
73.296 White-speck <i>Mythimna unipuncta</i> (Haworth)	NE
73.297 White-point <i>Mythimna albipuncta</i> (Denis and Schiffermüller)	NE
73.298 Clay <i>Mythimna ferrago</i> (Fabricius)	LC
73.299 Shore Wainscot <i>Mythimna litoralis</i> (Curtis)	LC

**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
73.300 L-album Wainscot <i>Mythimna l-album</i> (Linnaeus)	NE
73.301 Shoulder-striped Wainscot <i>Leucania comma</i> (Linnaeus)	LC
73.304 Cosmopolitan <i>Leucania loreyi</i> (Duponchel)	NE
73.307 Pearly Underwing <i>Peridroma saucia</i> (Hübner)	NE
73.308 Portland Moth <i>Actebia praecox</i> (Linnaeus)	CR
73.311 Coast Dart <i>Euxoa cursoria</i> (Hufnagel)	NT
73.312 Square-spot Dart <i>Euxoa obelisca</i> (Denis and Schiffermüller)	LC
73.313 White-line Dart <i>Euxoa tritici</i> (Linnaeus)	LC
73.314 Garden Dart <i>Euxoa nigricans</i> (Linnaeus)	NT
73.315 Great Dart <i>Agrotis bigramma</i> (Esper)	NE
73.316 Light Feathered Rustic <i>Agrotis cinerea</i> (Denis and Schiffermüller)	CR
73.317 Heart & Dart <i>Agrotis exclamationis</i> (Linnaeus)	LC
73.319 Turnip Moth <i>Agrotis segetum</i> (Denis and Schiffermüller)	LC
73.320 Heart & Club <i>Agrotis clavis</i> (Hufnagel)	NT
73.322 Archer's Dart <i>Agrotis vestigialis</i> (Hufnagel)	LC
73.323 Sand Dart <i>Agrotis ripae</i> Hübner	LC
73.324 Crescent Dart <i>Agrotis trux</i> (Hübner)	LC
73.325 Shuttle-shaped Dart <i>Agrotis puta</i> (Hübner)	NE
73.327 Dark Sword-grass <i>Agrotis ipsilon</i> (Hufnagel)	NE
73.328 Flame <i>Axylia putris</i> (Linnaeus)	LC
73.329 Flame Shoulder <i>Ochropleura plecta</i> (Linnaeus)	LC
73.331 Barred Chestnut <i>Diarsia dahlia</i> (Hübner)	LC
73.332 Purple Clay <i>Diarsia brunnea</i> (Denis and Schiffermüller)	LC
73.333 Ingrailed Clay <i>Diarsia mendica</i> (Fabricius)	LC
73.334 Small Square-spot <i>Diarsia rubi</i> (Vieweg)	LC
73.336 Red Chestnut <i>Cerastis rubricosa</i> (Denis and Schiffermüller)	LC
73.338 True Lover's Knot <i>Lycophotia porphyrea</i> (Denis and Schiffermüller)	LC
73.339 Dotted Rustic <i>Rhyacia simulans</i> (Hufnagel)	VU
73.341 Northern Rustic <i>Standfussiana lucerneae</i> (Linnaeus)	LC
73.342 Large Yellow Underwing <i>Noctua pronuba</i> (Linnaeus)	LC
73.343 Broad-bordered Yellow Underwing <i>Noctua fimbriata</i> (Schreber)	LC
73.345 Lesser Yellow Underwing <i>Noctua comes</i> (Hübner)	LC
73.346 Least Yellow Underwing <i>Noctua interjecta</i> Hübner	LC
73.348 Lesser Broad-bordered Yellow Underwing <i>Noctua janthe</i> (Borkhausen)	LC
73.350 Great Brocade <i>Eurois occulta</i> (Linnaeus)	NE
73.351 Double Dart <i>Graphiphora augur</i> (Fabricius)	LC
73.352 Green Arches <i>Anaplectoides prasina</i> (Denis and Schiffermüller)	LC
73.353 Dotted Clay <i>Xestia baja</i> (Denis and Schiffermüller)	LC
73.355 Neglected Rustic <i>Xestia castanea</i> (Esper)	LC
73.356 Heath Rustic <i>Xestia agathina</i> (Duponchel)	LC
73.357 Square-spot Rustic <i>Xestia xanthographa</i> (Denis and Schiffermüller)	LC
73.358 Six-striped Rustic <i>Xestia sexstrigata</i> (Haworth)	LC
73.359 Setaceous Hebrew Character <i>Xestia c-nigrum</i> (Linnaeus)	LC
73.360 Triple-spotted Clay <i>Xestia ditrapezium</i> (Denis and Schiffermüller)	RE

**Appendix 2 (cont)** Checklist of Irish Macro-moths: Species are listed in the checklist order and with the names and numbers of Agassiz *et al.* (2015). The Category abbreviations in the Assessment column are CR = Critically Endangered, DD = Data Deficient, EN = Endangered, LC = Least Concern, NE = Not Evaluated, NT = Near Threatened, RE = Regionally Extinct and VU = Vulnerable.

<u>Species Number and accepted common and scientific name</u>	<u>Assessment</u>
73.361 Double Square-spot <i>Xestia triangulum</i> (Hufnagel)	LC
73.363 Northern Dart <i>Xestia alpicola</i> (Zetterstedt)	DD
73.365 Autumnal Rustic <i>Eugnorisma glareosa</i> (Esper)	LC
73.368 Gothic <i>Naenia typica</i> (Linnaeus)	LC
74.004 Least Black Arches <i>Nola confusalis</i> (Herrich-Schäffer)	LC
74.008 Green Silver-lines <i>Pseudoips prasinana</i> (Linnaeus)	LC
74.009 Oak Nycteoline <i>Nycteola revayana</i> (Scopoli)	LC
74.011 Cream-bordered Green Pea <i>Earias clorana</i> (Linnaeus)	RE



**Plate 3:** Black Arches *Lymantria monacha* - photo: Michael O'Donnell, Co. Wexford.