European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC)

Fourth Report by the United Kingdom under Article 17

on the implementation of the Directive
from January 2013 to December 2018

Conservation status assessment for the species:

S4035 - Fisher's estuarine moth (*Gortyna borelii lunata*)

UNITED KINGDOM

IMPORTANT NOTE - PLEASE READ

- The information in this document represents the UK Report on the conservation status of this species, submitted to the European Commission as part of the 2019 UK Reporting under Article 17 of the EU Habitats Directive.
- It is based on supporting information provided by the geographically-relevant Statutory Nature Conservation Bodies, which is documented separately.
- The 2019 Article 17 UK Approach document provides details on how this supporting information contributed to the UK Report and the fields that were completed for each parameter.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Maps showing the distribution and range of the species are included (where available).
- Explanatory notes (where provided) are included at the end. These provide additional audit trail information to that included within the UK assessments. Further underpinning explanatory notes are available in the related country-level reports.
- Some of the reporting fields have been left blank because either: (i) there was insufficient information to complete the field; (ii) completion of the field was not obligatory; and/or (iii) the field was not relevant to this species (section 12 Natura 2000 coverage for Annex II species).
- The UK-level reporting information for all habitats and species is also available in spreadsheet format.

Visit the JNCC website, https://jncc.gov.uk/article17, for further information on UK Article 17 reporting.

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NATIONAL LEVEL

1. General information

1.1 Member State	**UK**
1.2 Species code	**4035**
1.3 Species scientific name	**Gortyna borelii lunata**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Fisher's estuarine moth

2. Maps

2.1 Sensitive species	No
2.2 Year or period	2013-2017
2.3 Distribution map	Yes
2.4 Distribution map Method used	Complete survey or a statistically robust estimate
2.5 Additional maps	No

3. Information related to Annex V Species (Art. 14)

3.1 Is the species taken in the wild/exploited?		No
3.2 Which of the measures in Art. 14 have been taken?	a) regulations regarding access to property	No
	b) temporary or local prohibition of the taking of specimens in the wild and exploitation	No
	c) regulation of the periods and/or methods of taking specimens	No
	d) application of hunting and fishing rules which take account of the conservation of such populations	No
	e) establishment of a system of licences for taking specimens or of quotas	No
	f) regulation of the purchase, sale, offering for sale, keeping for sale or transport for sale of specimens	No
	g) breeding in captivity of animal species as well as artificial propagation of plant species	No
	h) other measures	No

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3.3 Hunting bag or quantity taken in the wild for Mammals and Acipenseridae (Fish)

a) Unit

b) Statistics/ quantity taken	Provide statistics/quantity per hunting season or per year (where season is not used) over the reporting period					
	Season/ year 1	Season/ year 2	Season/ year 3	Season/ year 4	Season/ year 5	Season/ year 6
Min. (raw, ie. not rounded)						
Max. (raw, ie. not rounded)						
Unknown	No	No	No	No	No	No

3.4. Hunting bag or quantity taken in the wild Method used

3.5. Additional information

BIOGEOGRAPHICAL LEVEL

4. Biogeographical and marine regions

4.1 Biogeographical or marine region where the species occurs

Atlantic (ATL)

4.2 Sources of information

Biosecurity for conservation translocations; Fisher's estuarine moth Gortyna borelli lunata, short-haired bumblebee Bombus subterraneus, pool frog Pelophylax lessonae and cirl bunting Emberiza cirlus translocations as case studies. Available at: http://discovery.ucl.ac.uk/1508519/1/Sainsbury_24June final Ecohealth.pdf

Butterfly Conservation: Fisher's estuarine moth. Available at: https://butterfly-conservation.org/files/fishers-estuarine-moth---bespoke-cs-guidance.pdf

Conservation management of Gortyna borella lunata (Lepidoptera: Noctuidae) in the United Kingdom. Journal of Insect Conservation 8(2) 173-183. June 2004

Hart, C. (1999). An estimate of the range and population levles of Fisher's estuarine moth. British Journal of Entomoloy and Natural History 1999: 11 129-138.

Invertebrate species: arthropods 4035 Fisher's estuarine moth Gortyna borelli lunata. JNCC http://jncc.defra.gov.uk/ProtectedSites/SACselection/species.asp?FeatureIntCode=S4035

Ringwood, Z. (2018). All currently poccupied sites for Gortyna borelli lunata. Unpublished email report to compiler.

Supporting conservation projects: Fisher's estuarine moth breeding programme. Available at: https://www.actionforthewild.org/projects/current-projects/item/154-fisher-s-estuarine-moth-breeding-programme

5. Range

5.1 Surface area (km²)

648.62

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5.2 Short-term trend Period	2014-2018	
5.3 Short-term trend Direction	Increasing (+)	
5.4 Short-term trend Magnitude	a) Minimum	b) Maximum
5.5 Short-term trend Method used	Complete survey or a statistically robust estimate	
5.6 Long-term trend Period		
5.7 Long-term trend Direction		
5.8 Long-term trend Magnitude	a) Minimum	b) Maximum
5.9 Long-term trend Method used		
5.10 Favourable reference range	a) Area (km²)	48
	b) Operator	
	c) Unknown	
	d) Method	The FRR is the same as in 2013. The value is considered to be large enough to support a viable population and no lower than the range estimate when the Habitats Directive came into force in the UK. For further details see the 2019 Article 17 UK Approach document.
5.11 Change and reason for change in surface area of range	Genuine change	
	The change is mainly due to:	Genuine change
5.12 Additional information	This is a genuine increase in range for this species as a result of a project to transplant the larval foodplant (hog's fennel) and the moth species with it. The actual range may change over the long-term, with new populations being established and existing ones becoming inundated due to sea level rise.	

6. Population

6.1 Year or period	2013-2017	
6.2 Population size (in reporting unit)	a) Unit	number of map 1x1 km grid cells (grids1x1)
	b) Minimum	
	c) Maximum	
	d) Best single value	16
6.3 Type of estimate	Best estimate	
6.4 Additional population size (using population unit other than reporting unit)	a) Unit	
	b) Minimum	
	c) Maximum	
	d) Best single value	
6.5 Type of estimate		
6.6 Population size Method used	Complete survey or a statistically robust estimate	
6.7 Short-term trend Period	2013-2017	
6.8 Short-term trend Direction	Increasing (+)	

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6.9 Short-term trend Magnitude	a) Minimum b) Maximum c) Confidence interval	
6.10 Short-term trend Method used	Complete survey or a statistically robust estimate	
6.11 Long-term trend Period		
6.12 Long-term trend Direction		
6.13 Long-term trend Magnitude	a) Minimum b) Maximum c) Confidence interval	
6.14 Long-term trend Method used		
6.15 Favourable reference population (using the unit in 6.2 or 6.4)	a) Population size b) Operator c) Unknown d) Method	14 with unit number of map 1x1 km grid cells (grids1x1) The FRP has changed since 2013. The new value is considered to be large enough to support a viable population and no less than the population estimate when the Habitats Directive came into force in the UK. The FRP has been revised from 20 localities in 2013 to 14 1x1km squares (which equates to 15 localities) for this reporting round. This is because of better information on the long-term viability of the sites where the species has been introduced (where hog's fennnel has been planted above mean high water). For further information see the 2019 Article 17 UK Approach document and country level reporting information.
6.16 Change and reason for change in population size	Genuine change The change is mainly due to: Genuine change	
6.17 Additional information	Population change for this species is mainly due to larval feeding on hog's fennel that has been planted up in areas safe from tidal inundation/sea level rise since the 2013 reporting round. Adult counts at key sites have fluctuated, but are considered to be stable overall.	

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (for long-term survival)? b) Is there a sufficiently large area of unoccupied habitat of suitable quality (for long-term survival)?	Yes
7.2 Sufficiency of area and quality of occupied habitat Method used	Complete survey or a statistically robust estimate	
7.3 Short-term trend Period	2013-2017	
7.4 Short-term trend Direction	Increasing (+)	
7.5 Short-term trend Method used	Complete survey or a statistically robust estimate	

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7.6 Long-term trend Period	
7.7 Long-term trend Direction	
7.8 Long-term trend Method used	
7.9 Additional information	Habitat is being created in some areas safe from sea level rise/tidal inundation, through planting of hog's fennel; this is providing adequate habitat to support an FRP at present, but it is not yet known if this will provide suitable habitat in the long-term (due to predicted sea level rise).

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Sea-level and wave exposure changes due to climate change (N04)	H

Threat	Ranking
Sea-level and wave exposure changes due to climate change (N04)	H

8.2 Sources of information	
8.3 Additional information	This species is under serious threat in the medium term through sea level rise in it's native range in Essex. It is not known for certain whether the Kent range is native or the result of an introduction, but these populations are more secure from sea level rise.

9. Conservation measures

9.1 Status of measures	a) Are measures needed?	Yes
	b) Indicate the status of measures	Measures identified and taken
9.2 Main purpose of the measures taken	Expand the current range of the species (related to 'Range')	
9.3 Location of the measures taken	Only inside Natura 2000	
9.4 Response to the measures	Medium-term results (within the next two reporting periods, 2019-2030)	

9.5 List of main conservation measures

Implement climate change adaptation measures (CN02)

9.6 Additional information	Conservation measures so far implemented involve planting of the larval foodplant (hog's fennel) in more secure locations (not threatened by sea level rise) close to exisiting colonies and translocating the species to these areas. Initial results have been good, with all planted areas currently occupied, but the longer-term prospects are not yet known.

10. Future prospects

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10.1 Future prospects of parameters	a) Range	Unknown
	b) Population	Unknown
	c) Habitat of the species	Unknown
10.2 Additional information	Future trend of Range is Unknown; Future trend of Population is Unknown; and Future trend of Habitat for the species is Unknown. The current trends for Range, Population and Habitat for the species are all increasing, suggesting the species should have good Future prospects. However, Fisher's Estuarine Moth is threatened by sea level rise in the medium term. Habitat for the species is currently Favourable because there is sufficient habitat to support a viable population - this is due to the planting of Hog's fennel in areas secure from sea level rise. It is not known whether these areas will provide stable, good quality habitat in the longer-term, or how quickly sea level rise will threaten the main natural populations. Future prospects are therefore considered as Unknown at this time. For further information on how future trends inform the Future Prospects conclusion see the 2019 Article 17 UK Approach document.	

11. Conclusions

11.1. Range	Favourable (FV)
11.2. Population	Favourable (FV)
11.3. Habitat for the species	Favourable (FV)
11.4. Future prospects	Unknown (XX)
11.5 Overall assessment of Conservation Status	Favourable (FV)
11.6 Overall trend in Conservation Status	Improving (+)
11.7 Change and reasons for change in conservation status and conservation status trend	a) Overall assessment of conservation status Genuine change The change is mainly due to: Genuine change b) Overall trend in conservation status No change The change is mainly due to:
11.8 Additional information	Conclusion on Range reached because: (i) the short-term trend direction in Range surface area is increasing; and (ii) the current Range surface area is above the Favourable Reference Range. Conclusion on Population reached because: (i) the short-term trend direction in Population size is increasing; and (ii) the current Population size is above the Favourable Reference Population. Conclusion on Habitat for the species reached because: (i) the area of occupied habitat is sufficiently large and (ii) the habitat quality is suitablefor the long-term survival of the species; and (iii) the short-term trend in area of habitat is increasing. Conclusion on Future prospects reached because: (i) the Future prospects for Range, Population and Habitat for the species are all currently Unknown.

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Overall assessment of Conservation Status is Favourable because three of the conclusions are Favourable and one is Unknown.

Overall trend in Conservation Status is based on the combination of the short-term trends for Range – improving , Population – improving, and Habitat for the species – improving.

Overall Conservation Status has changed from Unfavourable-bad in 2013 to Favourable because Population has changed from Unfavourable-bad to Favourable, Habitat for the species has changed from Unfavourable-bad to Favourable and Future Prospects has changed from Unfavourable-inadequate to Unknown.

Overall Trend in Conservation Status has not changed since 2013.

12. Natura 2000 (pSCIs, SCIs and SACs) coverage for Annex II species

12.1 Population size inside the pSCIs, SCIs and SACs network (on the biogeographical/marine level including all sites where the species is present)	a) Unit	number of map 1x1 km grid cells (grids1x1)
	b) Minimum	
	c) Maximum	
	d) Best single value	16
12.2 Type of estimate		Best estimate
12.3 Population size inside the network Method used		Complete survey or a statistically robust estimate
12.4 Short-term trend of population size within the network Direction		Increasing (+)
12.5 Short-term trend of population size within the network Method used		Complete survey or a statistically robust estimate
12.6 Additional information		

13. Complementary information

13.1 Justification of % thresholds for trends	
13.2 Trans-boundary assessment	
13.3 Other relevant Information	

Distribution Map

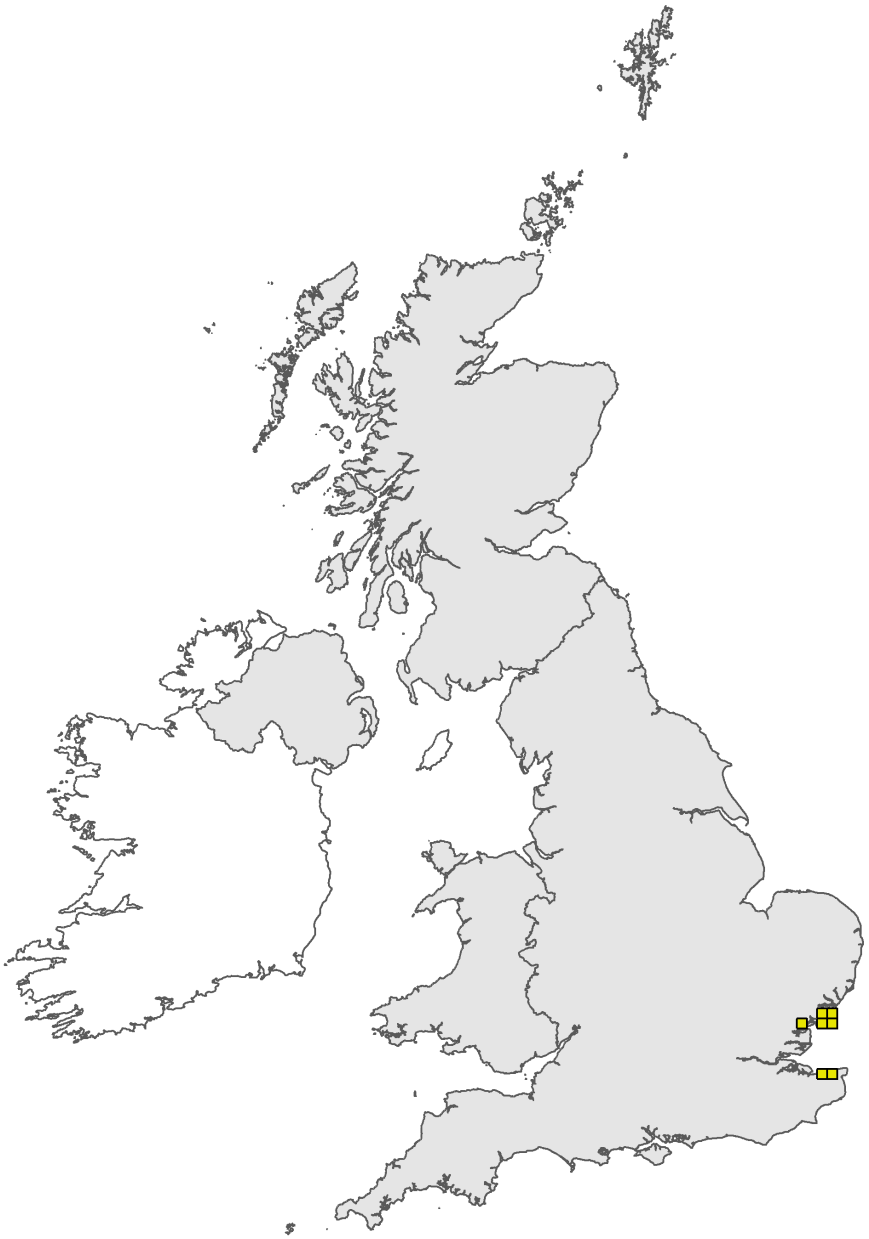

Figure 1: UK distribution map for S4035 - Fisher's estuarine moth (*Gortyna borelii lunata*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The 10km grid square distribution map is based on available species records within the current reporting period. For further details see the 2019 Article 17 UK Approach document.

Range Map

Figure 2: UK range map for S4035 - Fisher's estuarine moth (*Gortyna borelii lunata*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

The range map has been produced by applying a bespoke range mapping tool for Article 17 reporting (produced by JNCC) to the 10km grid square distribution map presented in Figure 1. The alpha value for this species was 20km. For further details see the 2019 Article 17 UK Approach document.

Explanatory Notes

Species name: Gortyna borelii lunata (4035) Region code: ATL

Field label	Note
5.12 Additional information	Genuine increase through project to transplant larval foodplant (hog's fennel) and the moth with it.
6.17 Additional information	Population change mainly due to larval feeding on hog-s fennel that has been planted up in areas safe from tidal inundation/ sea level rise since the last reporting round. Adult counts at key sites have fluctuated and the counts at Skipper's Island (the largest colony) have increased following a tidal inundation in 2012; but they are considered to be stable overall.
7.9 Additional information	Habitat is being created in some areas safe from sea level rise/ tidal inundation, through planting of hog's fennel, but it is not yet known if this will provide suitable habitat in the long-term.
8.3 Additional information	This species is under serious threat in the medium term through sea level rise in it's native range in Essex. It is not known for certain whether the Kent range is native or the result of an introduction, but these populations are more secure from sea level rise.
10.2 Additional information	FEM is threatened by sea leavel rise in the medium term on all its Essex sites. The Kent sites are more secure. Conservation measures so far implemented involve planting of the larval foodplant (hog's fennel) in more secure locations (not threatened by sea level rise) close to exisitng colonies. and translocating the species to these areas. Initial results have been good, with all planted areas currently occupied, but the longer-term prospects are not yet known.