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:

S1903 - Fen orchid (*Liparis loeselii*)

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.

Report on the main results of the surveillance under Article 11 for Annex II, IV and V species (Annex B)

NATIONAL LEVEL

1. General information

1.1 Member State	**UK**
1.2 Species code	**1903**
1.3 Species scientific name	**Liparis loeselii**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Fen orchid

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

England
PANKHURST, T., 2018 Report of conservation action for rare and threatened fenland plants: Fen Orchid (Liparis loeselii var. loeselii), Fen Violet (Viola stagnina) and Yellow Early Marsh-orchid (Dactylorhiza incarnata ssp. ochroleuca): 2017-18 Plantlife, Salsibury - a report to Natural England.
PANKHURST, T., 2017 Report of conservation action for rare and threatened fenland plants: Fen Orchid Liparis loeselii var. loeselii, Fen Violet Viola stagnina and Yellow Early Marsh-orchid Dactylorhiza incarnata ssp. ochroleuca. 2016-2017 Plantlife, Salisbury - a report to Natural England.
MASON, R.A., 2014a A survey of Sphagnum moss at Butterfly Conservation Catfield Fen and comparison with past surveys. RSPB internal report
MASON, R.A., 2014b An assessment of Sphagnum moss and fen orchid Liparis loeselii on Mill Marsh West and Mill Marsh East at Butterfly Conservation Catfield Fen. RSPB internal report
Wales
Carrington, D et al 2010, The Fen Orchid - a species on the brink, British Wildlife, Vol 22, no 1: pp 1-8
Guest. D. pers. comm e-mail, 29 August 2017 Liparis at Whiteford.
Hurford, C. 1994. A survey to monitor the Fen Orchid Liparis loesilii in dune slack ND6 at Kenfig NNR, October 1992. Species & Monitoring report 92/2/24
Hurford, C. 1997. Year 1 report on the Fen Ochid Liparis loesilii Species Recovery Programme at Kenfig NNR, Glamorgan. Species & Monitoring Rport 97/2/1
Jones P.S. 1995. An inventory of Liparis loesilii var.ovata populations at Kenfig National Nature Reserve, Glamorgan. 1985 - 95. Countryside Council for Wales, Bangor HQ

Jones P.S. 1996. The conservation of Liparis loesilii var.ovata in Wales: Interim report of progress with phase 1 of the recovery Project. Countryside Council for Wales, Bangor HQ
Jones, P. S. 1998. Aspects of the population biology of Liparis loeselii (L.) Rich. var. ovata Ridd. ex Godfery (Orchidaceae) in the dune slacks of South Wales, UK. Botanical Journal of the Linnean Society, Volume 126, p.123-139.
Kay, Q. O. N., and John R. 1995. The conservation of scarce and declining plant species in lowland Wales: population genetics, demographic ecology and recommendations for future conservation in 32 species of lowland grassland and related habitats. Countryside Council for Wales Science Report No. 110.
Newberry, C. & Westwood, S. 2008. Kenfig SAC Petalwort Petalophyllum ralfsii (1395) & Fen orchid Liparis loeselii (1903) Summary SAC Monitoring report (draft). Countryside Council for Wales, unpublished report.
Wigginton, M. J., , 1999. British Red Data Books. 1. Vascular plants, 3rd Edition. JNCC, Peterborough.
Wilkinson, K. 2007. Monitoring Report for Kenfig/Cynffig SAC 2002 - 2006. CCW internal report.
Wilkinson. K.2013. Kenfig SAC Liparis loeselii Surveillance Data 2003-2012
Wilkinson. K. (in prep) Kenfig SAC Monitoring Summary note Liparis loeselii Fen Orchid, Monitoring Round 2013 to 2018
Wilkinson. K. (in prep). Carmarthen Bay Dunes Liparis loeselii SAC Monitoring summary note 201
Wilkinson. K. 2017. Kenfig Extent of slack habitat calculcated from Gwawr Jones maps.
Wilkinson. K. Hayes.J. Kenfig SAC Liparis loeselii Surveillance Data All data combined JH: GIS inventory. NRW HQ dataset. 2018. Wales
Kenfig SAC Liparis loeselii Surveillance Data 2003 - 2012 single excel spreadsheet. K. Wilkinson.
Kenfig SAC Liparis loeselii Surveillance Data 2013 - 2017 separate spreasheets for each year. K. Wilkinson.

5. Range

5.1 Surface area (km²)	381.63	
5.2 Short-term trend Period	2007-2018	
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)	790
	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 information see the 2019 Article 17 UK Approach document.

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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	The 'increasing' short term trend recognises the re-establishment of fen orchid on a new dune slack at Whiteford National Nature Reserve (NNR) in Wales. It had been lost from this dune system in the previous reporting round.	

6. Population

6.1 Year or period	2017-2017	
6.2 Population size (in reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	
	c) Maximum	
	d) Best single value	13349
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	2007-2017	
6.8 Short-term trend Direction	Increasing (+)	
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	1987-2017	
6.12 Long-term trend Direction	Stable (0)	
6.13 Long-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.14 Long-term trend Method used	Complete survey or a statistically robust estimate	
6.15 Favourable reference population (using the unit in 6.2 or 6.4)	a) Population size	
	b) Operator	Much more than (>>)
	c) Unknown	
	d) Method	The FRP has changed since 2013. An FRP operator has been used because it has not been possible to calculate the exact FRP value. The FRP is considered to be more than 25% above the current population. The FRP unit for 2013 (localities) is not considered to be

	the most appropriate unit for this species. The population distribution across the localities has always has been very uneven, with some localities holding many thousands of plants and others very few. Expert opinion considers that the FRP should be approximately 20,000 individuals, but as this is not a scientifically-robust estimate the operator 'much more than' has been used. For further information see the 2019 Article 17 UK Approach document.
6.16 Change and reason for change in population size	Genuine change The change is mainly due to: Genuine change
6.17 Additional information	Due to the species' ecology, there are significant flucutations in population size across years. Counts of fen orchid have shown an increase in the number of individuals across the current reporting period, but has not reached parity with historic levels.

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)?	No
	b) Is there a sufficiently large area of unoccupied habitat of suitable quality (for long-term survival)?	No
7.2 Sufficiency of area and quality of occupied habitat Method used	Based mainly on expert opinion with very limited data	
7.3 Short-term trend Period	2007-2018	
7.4 Short-term trend Direction	Increasing (+)	
7.5 Short-term trend Method used	Based mainly on extrapolation from a limited amount of data	
7.6 Long-term trend Period		
7.7 Long-term trend Direction		
7.8 Long-term trend Method used		
7.9 Additional information	Fen orchid are restricted to open slack habitats. Over stabilisation of dune systems has led to a decline in suitable habitat. Work is ongoing to increase sufficiency of habitat, including creation of early successional dune slacks.	

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06)	H
Extensive grazing or undergrazing by livestock (A10)	H
Agricultural activities generating air pollution (A27)	M
Other invasive alien species (other then species of Union concern) (I02)	M

Problematic native species (I04)	M
Mixed source air pollution, air-borne pollutants (J03)	M
Abstraction from groundwater, surface water or mixed water (K01)	H
Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (L02)	H

Threat	Ranking
Abandonment of grassland management (e.g. cessation of grazing or mowing) (A06)	H
Extensive grazing or undergrazing by livestock (A10)	H
Agricultural activities generating air pollution (A27)	M
Other invasive alien species (other then species of Union concern) (I02)	M
Problematic native species (I04)	M
Mixed source air pollution, air-borne pollutants (J03)	M
Abstraction from groundwater, surface water or mixed water (K01)	H
Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (L02)	H

8.2 Sources of information

8.3 Additional information

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		Restore the habitat of the species (related to 'Habitat for the species')
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

Reinstate appropriate agricultural practices to address abandonment, including mowing, grazing, burning or equivalent measures (CA04)
Reduce/eliminate soil pollution from agricultural activities (CA14)
Manage drainage and irrigation operations and infrastructures in agriculture (CA15)
Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes (CL01)
Reinforce populations of species from the directives (CS01)
Reintroduce species from the directives (CS02)
Improvement of habitat of species from the directives (CS03)

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9.6 Additional information

10. Future prospects

10.1 Future prospects of parameters	a) Range	Poor
	b) Population	Good
	c) Habitat of the species	Poor
10.2 Additional information	Future trend of Range is Positive - increasing <=1% (one percent or less) per year on average; Future trend of Population is Very Positive - increasing >1% (more than one percent) per year on average; and Future trend of Habitat for the species is Positive - slight/moderate improvement. 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	Unfavourable - Bad (U2)
11.2. Population	Unfavourable - Bad (U2)
11.3. Habitat for the species	Unfavourable - Inadequate (U1)
11.4. Future prospects	Unfavourable - Inadequate (U1)
11.5 Overall assessment of Conservation Status	Unfavourable - Bad (U2)
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 No change The change is mainly due to: b) Overall trend in conservation status Genuine change The change is mainly due to: Genuine change
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 more than 10% below 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 more than the Favourable Reference Population. Conclusion on Habitat for the species reached because: (i) the area of occupied and unoccupied habitat is unknown and (ii) the habitat quality is inadequate for the long-term survival of the species; and (iii) the short-term trend in area of habitat is unknown. Conclusion on Future prospects reached because: (i) the Future prospects for Range are bad; (ii) the Future prospects for Population are good; and (iii) the Future prospects for Habitat for the species are unknown. Overall assessment of Conservation Status is Unfavourable-bad because two of the conclusions are Unfavourable-bad and one is Unknown. Overall trend in Conservation Status is based on the combination of the short-term trends for Range - increasing, Population - increasing, and Habitat for the

species - unknown.
Overall assessment of Conservation Status has not changed since 2013.
The Overall trend in Conservation Status has changed between 2013 and 2019 because the Range trend had changed from decreasing to increasing, the Population trend has changed from decreasing to increasing, the Habitat for the species trend has changed from decreasing to increasing.

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 individuals (i)
	b) Minimum	
	c) Maximum	
	d) Best single value	13349
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

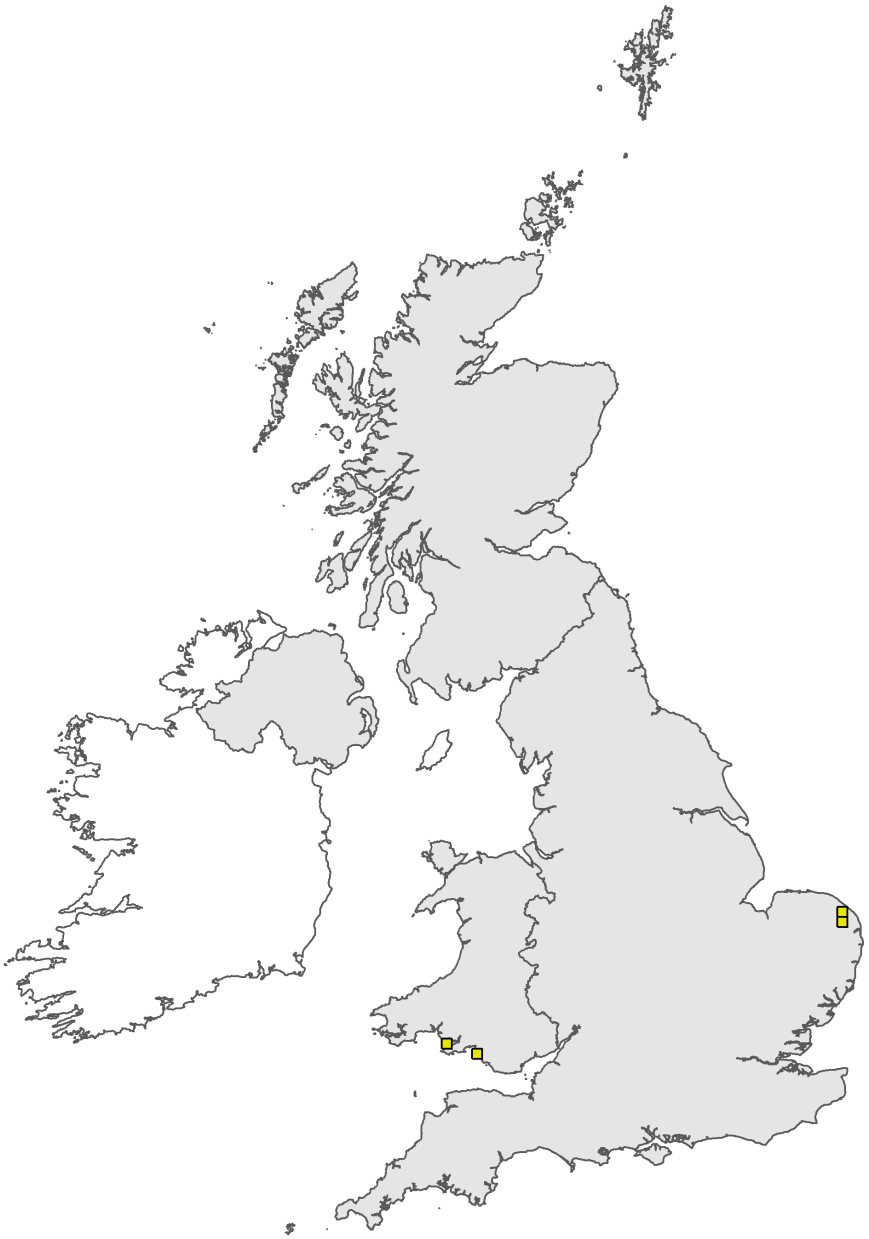

Figure 1: UK distribution map for S1903 - Fen orchid (*Liparis loeselii*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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 S1903 - Fen orchid (*Liparis loeselii*). 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.