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

Supporting documentation for the
conservation status assessment for the species:

S1903 - Fen orchid (*Liparis loeselii*)

WALES

IMPORTANT NOTE - PLEASE READ

- The information in this document is a country-level contribution to 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.
- The 2019 Article 17 UK Approach document provides details on how this supporting information was used to produce the UK Report.
- The UK Report on the conservation status of this species is provided in a separate document.
- The reporting fields and options used are aligned to those set out in the European Commission guidance.
- Explanatory notes (where provided) by the country are included at the end. These provide an audit trail of relevant supporting information.
- 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; (iii) the field was not relevant to this species (section 12 Natura 2000 coverage for Annex II species) and/or (iv) the field was only relevant at UK-level (sections 9 Future prospects and 10 Conclusions).
- For technical reasons, the country-level future trends for Range, Population and Habitat for the species are only available in a separate spreadsheet that contains all the country-level supporting information.
- The country-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 (Wales information only)**
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

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.

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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)		
5.2 Short-term trend Period		
5.3 Short-term trend Direction	Increasing (+)	
5.4 Short-term trend Magnitude	a) Minimum	b) Maximum
5.5 Short-term trend Method used		
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) b) Operator c) Unknown d) Method	
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		

6. Population

6.1 Year or period	2017	
6.2 Population size (in reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	
	c) Maximum	
	d) Best single value	1012
6.3 Type of estimate	Minimum	

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6.4 Additional population size (using population unit other than reporting unit)	a) Unit	number of localities (localities)
	b) Minimum	
	c) Maximum	
	d) Best single value	2
6.5 Type of estimate	Best 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	322
	b) Maximum	322
	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	Decreasing (-)	
6.13 Long-term trend Magnitude	a) Minimum	95
	b) Maximum	95
	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	
	c) Unknown	
	d) Method	
6.16 Change and reason for change in population size	Genuine change	
	The change is mainly due to:	Genuine change
6.17 Additional information		

7. Habitat for the species

7.1 Sufficiency of area and quality of occupied habitat	a) Are area and quality of occupied habitat sufficient (to maintain the species at FCS)?	No
	b) Is there a sufficiently large area of occupied AND unoccupied habitat of suitable quality (to maintain the species at FCS)?	No
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	2007-2017	
7.4 Short-term trend Direction	Increasing (+)	
7.5 Short-term trend Method used	Complete survey or a statistically robust estimate	
7.6 Long-term trend Period		
7.7 Long-term trend Direction		

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7.8 Long-term trend Method used

7.9 Additional information

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
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
Natural succession resulting in species composition change (other than by direct changes of agricultural or forestry practices) (L02)	H

Threat	Ranking
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
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

Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes (CL01)

Reduce/eliminate soil pollution from agricultural activities (CA14)

Reinforce populations of species from the directives (CS01)

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Reintroduce species from the directives (CS02)

Improvement of habitat of species from the directives (CS03)

9.6 Additional information

10. Future prospects

10.1 Future prospects of parameters

a) Range
b) Population
c) Habitat of the species

10.2 Additional information

11. Conclusions

11.1. Range

11.2. Population

11.3. Habitat for the species

11.4. Future prospects

11.5 Overall assessment of Conservation Status

11.6 Overall trend in Conservation Status

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

No change

The change is mainly due to:

11.8 Additional information

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	1012

12.2 Type of estimate

Minimum

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 (+)

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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

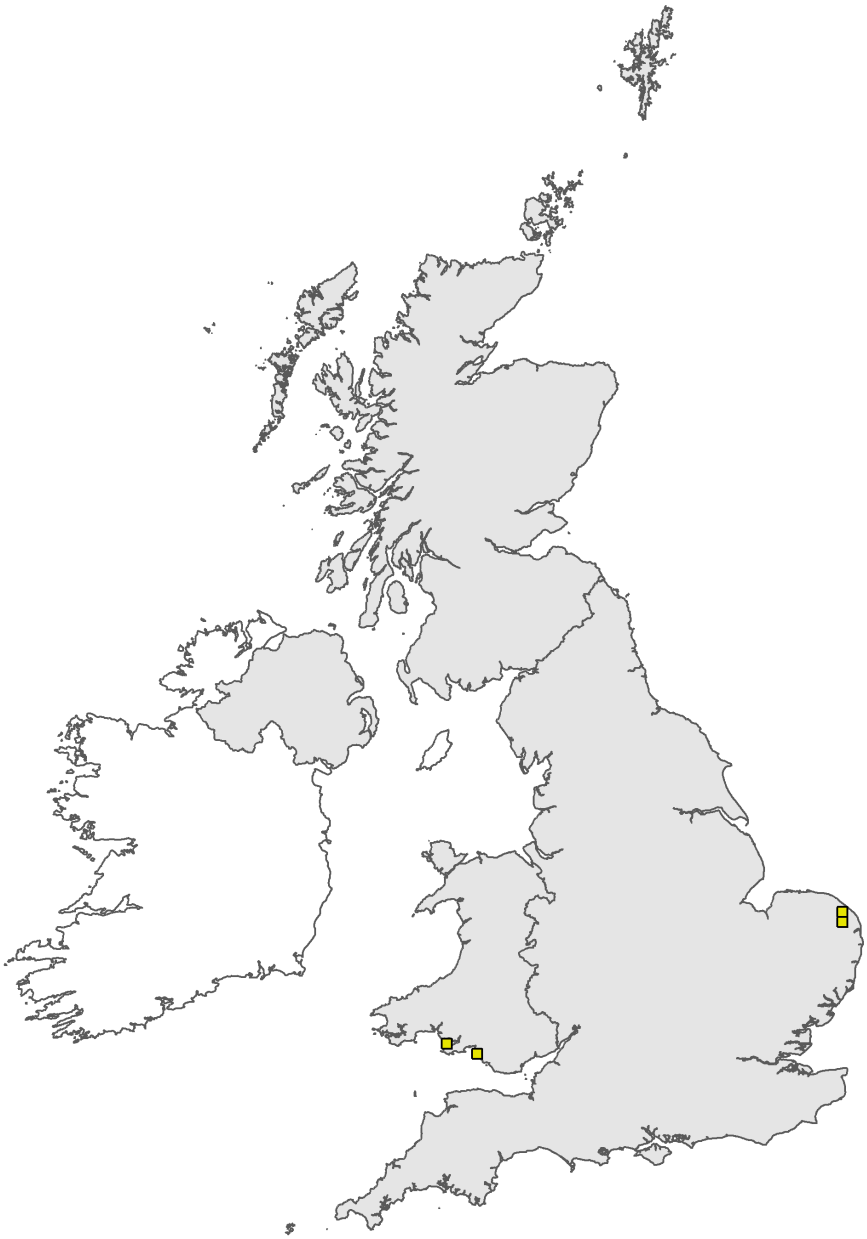

Figure 1: UK distribution map for S1903 - Fen orchid (*Liparis loeselii*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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.

Explanatory Notes

Species name: Liparis loeselii (1903) Region code: ATL

Field label	Note
5.3 Short term trend; Direction	See 5.11
5.11 Change and reason for change in surface area of range	There is geniune change with regard to the Whiteford site. During the last reporting round Liparis had been lost from this dune system. Since then a new slack has developed which it was thought had suitable conditions for a re-seeding trail of Liparis in 2012. Subsequently 2 non-flowering young plants were found in 2016 and then 4 plants in 2017 (Guest 2017). There are past records for seven other sites all in South Wales; Margam Burrows, Baglan Burrows, Crymlyn Burrows, Oxwich, Pembrey, Pendine and Marros. The last of these sites where it was seen was at Pendine when it was last recorded in 2002.
6.4 Additional population size	Liparis is currently confined to two separate dune systems in Wales, Kenfig & Whiteford.
6.6 Population size; Method used	The population estimate is based on a single year count 2017 carried out by several individual surveyors in a structured survey. However Liparis is an inconspicuous species, especially when juvenile, as a consequence any count data should be considered a minimum value. Like many orchids, Liparis populations are prone to significant fluctuations depending on seasonal climate conditions.
6.9 Short term trend; Magnitude	Annual counts of Liparis at its two extant sites in Wales show an increase from 241 individuals in 2007, to 1016 plants in 2017, equating to an increase of 322%. While the species has undoubtedly shown a strong positive trend at its core Welsh locality (Kenfig Burrows NNR) over this time period it is important to note that accurate counts of the population are extremely difficult and the populations are known to undergo significant natural fluctuations in size.
6.10 Short term trend; Method used	Annual counts of the fen orchid population at Kenfig Burrows NNR are undertaken by the site Warden, NRW staff and volunteers. Both flowering and non-flowering individuals are recorded, with recording focusing on known recent localities for the species. Similar annual counts were undertaken at Whiteford Burrows NNR betweens 1976 and the species disappearance in 2005. Subsequent searches at the site by CCW staff prior to the formation of NRW were more ad hoc, with focussed annual surveys recommencing following seed scattering in 2012.
6.13 Long term trend; Magnitude	The long-term trend in the population of fen orchids in Wales is one of significant decline. Since the late 1980s, the species has been lost from three (Pendine Burrows, Crymlyn Burrows and Baglan Burrows) out of 5 dune sytems on which it occurred and it retains only a tenuous hold at Whiteford Burrows where it has re-established following the reintroduction of seed. There has been an equally significant long-term decline in the numbers of individual plants, with the population at Kenfig alone falling from an estimated 20,000+ in 1987-1992 (Jones 1995) to c.1000 in 2017(Wilkinson.K, Hayes.J, 2018). Historic populations on the other Welsh dune systems were not as large as those at Kenfig, although regular counts in excess of 800 flowering stems were recorded at Whiteford in the 1980s and at one point the population at Crymlyn Burrows also exceeded 1000 plants (Carrington et al. 2010).
6.14 Long term trend; Method used	Regular and organised counts of the Liparis population have been undertaken at its two main Welsh localities (Kenfig and Whiteford Burrows). Counts at the other localities where fen orchids have been present in the past have been more ad hoc.
6.17 Additional information	There is no reason to consider that the population structure of Liparis at Kenfig Burrows (its core Welsh locality) deviates significantly from normal.

7.1 Sufficiency of area and quality of occupied habitat	- area = NO -quality = NO Overall = NO In Wales Liparis is confined to damp, winter flooded dune slacks in the south of the country, where it occupies the early to mid successional stages in slack development. Over-stablistation of dune systems in south Wales has led to a decline in the extent and distribution of these open slack habitats. Liparis is now restricted to a small proportion of its former sites and neither the area nor quality of the habitat it occupies is considered sufficient to maintain it at FCS. b) If NO, is there a sufficiently large area of occupied & unoccupied habitat of suitable quality (to maintain the species at FCS)? YES/NO/Unknown sufficient occupied = NO sufficient unoccupied = NO Overall = NO The overall extent of damp dune slack habitat within the natural range of Liparis in Wales is almost certainly sufficient to maintain a population at FCS. However, there has been a long-term decline in the extent of early successional phases in slack development required by the species and the quality of this dune slack habitat is not considered sufficient to maintain Liparis at FCS.
7.4 Short term trend; Direction	Work to create early successional dune slack at Kenfig has created suitable habitat with some other scraped slacks hopefully coming into condition in the near future and there are plans to rejuvenate other slack habitat here and at other dune systems in South Wales. The development of the new slack at Whiteford has added to the amount of suitable habitat available here but some scrub control has been done and will still need to be done into the future.There have been small scale works (slack scraping) at other sites including Pendine (2007)and Pembrey(2010) have had no success so far. Mowing of slacks at Kenfig have helped maintain conditions in the past and in the present.
8.1 Characterisation of pressures/ threats	Pressures: the principal pressures are natural succession (L02) resulting from under-grazing (A10), Wilkinson (2007 & 2017)and lack of dune system dynamism, exacerbated by air pollution (A27 & J03). The invasive shrub (I02) Hippophae is a significant problem at Pembrey. Forestry activities (B27) is a pressure at Whiteford and Tywyn Burrows(Pembrey). Abstraction from the groundwater (K01) has been suggested as a cause of lowered water levels at Kenfig (Carrington et. al, 2010). Threats: all current pressures are expected to continue to act over the next two reporting cycles. Some action is being taken to try to create suitable habitat but without sustainable natural creation of habitat through dune mobility the continued threat from natural succession will continue. Agricultural pollution (A27) seems to be an increasing threat, especially if intensive agriculture is permitted close to dune systems. Afforestation (B01) may increase in the future, as may coastal development (F05 & F08) - depending on GB/Welsh legislation and protection.
9.5 List of main conservation measures	Managing dune systems to increase mobility and the abundance of early successional habitats (CL01) has taken place in a number of Natura 2000 sites but especially Kenfig, as has control of invasive species (CI03) (Carrington et al., 2010. Wilkinson 2007 & 2017); NRW regulate air pollution and limit its impacts on dune systems (CJ01); NRW also regulate agricultural air pollution (CA14), have policies preventing afforestation of dunes (CB01). There is hope that future large scale funded projects are planned on Welsh dunes in the near future that will implement and improve upon many of the key conservation measures. There will be plans to reinforce or reintroduce the species (CS01 & CS02) on sites but this should be assessed in line with the NRW's internal guidance note 5: Considering Conservation translocations.