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:

S1441 - Shore dock (*Rumex rupestris*)

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.

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 (Wales information only)**
1.2 Species code	**1441**
1.3 Species scientific name	**Rumex rupestris**
1.4 Alternative species scientific name	
1.5 Common name (in national language)	Shore dock

2. Maps

2.1 Sensitive species	No
2.2 Year or period	2012-2017
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

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

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

Bonner, I.R. (2007) Anglesey Rare Plant Register (revised edition). Botanical Society of the British Isles.
Botanical Society of Britain & Ireland distribution database, https://database.bsbi.org/
Creer, J. (2005) Abermenai - Aberffraw SAC. R. rupestris monitoring. (Countryside Council for Wales. Bangor.)
Creer, J. (2012) in prep. Abermenai - Aberffraw SAC. R. rupestris monitoring. (Countryside Council for Wales. Bangor.)
Daniels R.E. & Moy I.L. (1998) Species Recovery Programme Shore Dock (Rumex rupestris Le Gall) English Nature Report Project T08059V1. ITE Furzebrook. Dorset
Daniels, R.E., McDonnell, E.J. & Raybould, A.F. (1998). The current status of Rumex rupestris Le Gall (Polygonaceae) in England and Wales, and threats to its survival and genetic diversity. Watsonia, 22: 33-39.
Evans, S.B. Surveillance reports for each year of the Marloes populations 2001 - 2016 (Unpublished reports to Countryside Council for Wales & NRW . B.S.B.I.)
Facey, R. (2015) Shore dock Search, Dunraven 30th July 2015, Unpublished file note.
Jones, R.A. (1993) Shore dock (Rumex rupestris). Monitoring report. Countryside Council for Wales.
Kay, Q.O.N. Draft Biological Flora of the British Isles: Rumex rupestris Le Gall. (Unpublished report submitted to the Rumex rupestris UKBAP Steering Group).
Kay, Q.O.N. 1996.The conservation of Rumex rupestris (Shore Dock) in Wales, Past, present and possible future sites and habitats of Rumex rupestris in South and West Wales, CCW Contract survey no. FC 73-01-153.
Kay, Q.O.N. 1998. The conservation of Rumex rupestris (Shore Dock) in Wales 2.

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

Coastal surveys during 1997, and conservation strategies for Rumex rupestris in relation to its distribution, ecology and biology. CCW Contract Survey FC 73-01-153.
McDonnell, E.J. (1995) The status of Shore dock (Rumex rupestris Le Gall) in Britain in 1994. Plantlife report no. 41, English nature Species Recovery Programme.
McDonnell, E.J. & King, M.P. (2006) Rumex rupestris Le Gall (Shore Docke) in SW England: review of recent surveys and assessment of current status. (In: Leach, S.J., Page, C.N. Peytoureau, Y. & Sandford, M.N. eds. Botanical Links in the Atlantic Arc, pp. 201-209. BSBI, London.)
Natural Resources Wales. 2013. Supporting documentation for the Third Report by the United Kingdom under Article 17 on the implementation of the Directive from January 2007 to December 2012 Conservation status assessment for species: S1441 Shore Dock, Rumex rupestris. Available from: http://jncc.defra.gov.uk/pdf/Article17Consult_20131010/S1441_WALES.pdf
Plantlife. (1999) Species action plan for plants, Shore dock.
Wade, A.E., Kay, Q.O.N. & Ellis, R.G. 1994. Flora of Glamorgan. H.M.S.O.
Stewart.B, Woodman. J.P. 2017. Glamorgan Rare Plant Register, Unpublished. BSBI
Wigginton, M. J. (1999) British Red Data Books. 1. Vascular plants, edn 3. JNCC Peterborough
Wilkinson, K. (2008) Dunraven Bay SAC. Rumex rupestris (1441) SAC Monitoring report Draft. (Unpublished report to Countryside Council for Wales).
Wilkinson, K. (2012) Dunraven Bay Rumex rupestris SAC Monitoring Population count 5th August 2011 Monitoring round 2007 to 2012. Unpublished file note.
Wilkinson, K. Guest, D. (2011) Future plans for Rumex rupestris at Dunraven Bay and the wider landscape. Unpublished file note.
Williams, G. 2016. Population counts of Rumex rupestris 2012 - 2016 excel spreadsheet.

5. Range

5.1 Surface area (km²)		
5.2 Short-term trend Period		
5.3 Short-term trend Direction	Stable (0)	
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	No change The change is mainly due to:	
5.12 Additional information		

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

6. Population

6.1 Year or period	2016-2017	
6.2 Population size (in reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	
	c) Maximum	
	d) Best single value	286
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	58
	b) Maximum	58
	c) Confidence interval	
6.10 Short-term trend Method used	Complete survey or a statistically robust estimate	
6.11 Long-term trend Period	1994-2017	
6.12 Long-term trend Direction	Uncertain (u)	
6.13 Long-term trend Magnitude	a) Minimum	
	b) Maximum	
	c) Confidence interval	
6.14 Long-term trend Method used	Insufficient or no data available	
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

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

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	Based mainly on extrapolation from a limited amount of data	
7.3 Short-term trend Period	2012-2017	
7.4 Short-term trend Direction	Decreasing (-)	
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		

8. Main pressures and threats

8.1 Characterisation of pressures/threats

Pressure	Ranking
Other forestry activities, excluding those relating to agro-forestry (B29)	M
Collapse of terrain, landslide (M05)	H
Sea-level and wave exposure changes due to climate change (N04)	H

Threat	Ranking
Other forestry activities, excluding those relating to agro-forestry (B29)	M
Collapse of terrain, landslide (M05)	H
Sea-level and wave exposure changes due to climate change (N04)	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	Maintain the current range, population and/or habitat for the species	
9.3 Location of the measures taken	Only inside Natura 2000	
9.4 Response to the measures	Short-term results (within the current reporting period, 2013-2018)	
9.5 List of main conservation measures		

Adapt/change forest management and exploitation practices (CB05)
Management, control or eradication of other invasive alien species (CI03)
Management of problematic native species (CI05)
Management of habitats (others than agriculture and forest) to slow, stop or reverse natural processes (CL01)
Reinforce populations of species from the directives (CS01)

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	286

12.2 Type of estimate

Minimum

12.3 Population size inside the network Method used

Complete survey or a statistically robust estimate

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

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

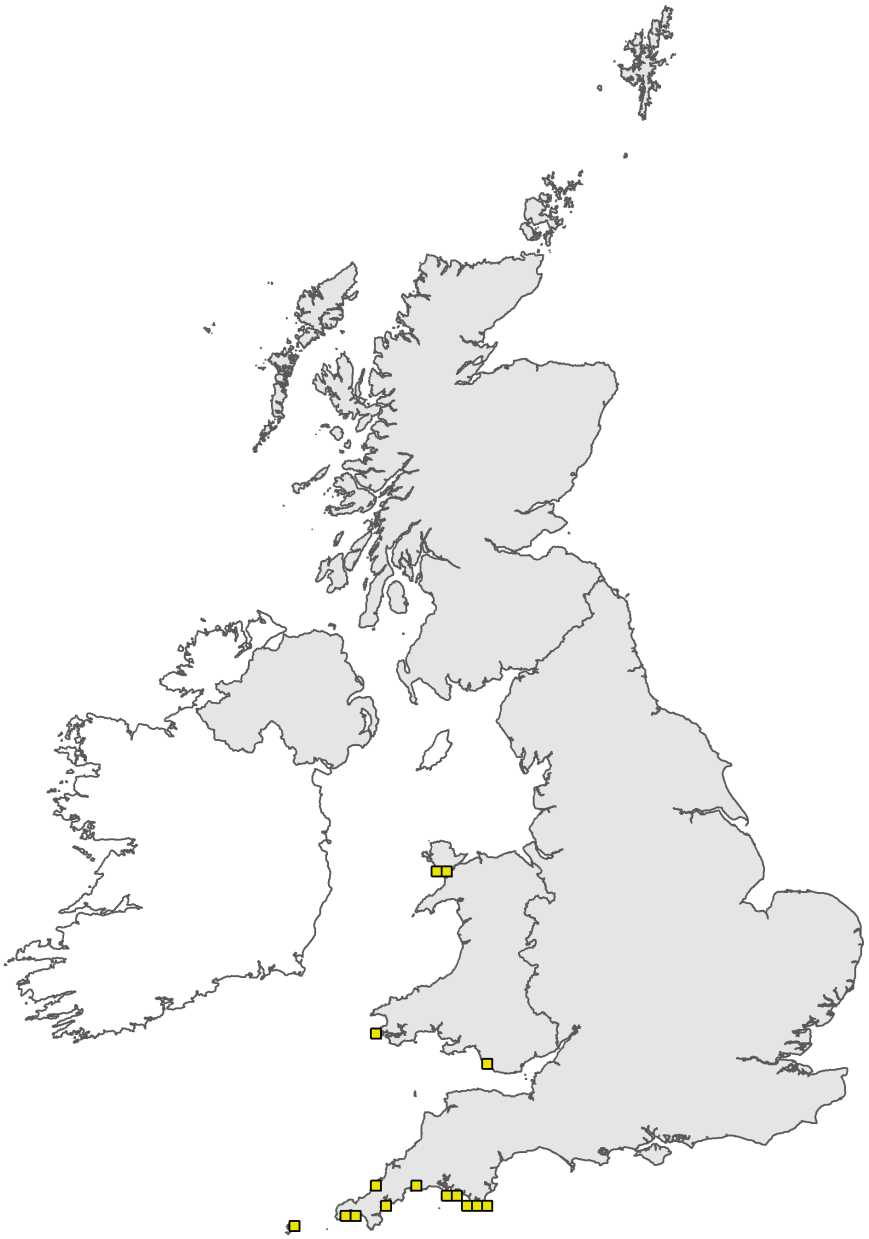

Figure 1: UK distribution map for S1441 - Shore dock (*Rumex rupestris*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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 S1441 - Shore dock (*Rumex rupestris*). 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: Rumex rupestris (1441)

Field label	Note
2.4 Distribution map; Method used	The 10km square distribution is considered to be near complete. There is good recent survey data from local botanists and NRW staff on the distribution of this species, with considerable effort put into searching suitable sites in north and south Wales. However, the potential habitat for this species is widely distributed around the Welsh coast and small populations of Shore Dock could readily be overlooked and new sites could be colonised.

Species name: Rumex rupestris (1441) Region code: ATL

Field label	Note
5.3 Short term trend; Direction	There has been no change to the known 10km2 distribution of Rumex rupestris over the last 12 years
5.11 Change and reason for change in surface area of range	There has been no change in the reported 10km square distribution since the previous article 17 report in 2013 (NRW, 2013).
6.6 Population size; Method used	Individual adult plants (both flowering and non-flowering) have been counted at all extant sites and nil results for previously occupied sites noted. At the same time, it is worth noting that plants vary considerably in size (number of flowering / fruiting stems) and in seed output. A small number of individuals may represent a very large fruiting population and vice versa.
6.8 Short term trend; Direction	See 6.9
6.9 Short term trend; Magnitude	Comprehesive counts of all known colonies were undertaken in 2007 and repeated in 2016/17. During this time the total Welsh population rose from 181 to 286 plants, equating to an overall increase of 58%. The bulk of this increase results from a rise in the number of plants at Newborough Warren on Anglesey, from 89 plants to 181 (Williams 2016, Creer 2005 & 2012), following active management of the plants habitat. The total number of plants in the Marloes population in Pembs remained relatively stable rising from 88 to 103 despite significant difference in the fortunes of individual colonies (Evans 2001 - 2016). While the population at Dunraven in Glamorgan decreased from four plants in 2007 to just two in 2017(Wilkinson 2008 & 2012, Facey 2015. Wilkinson pers. com. 2017).
6.10 Short term trend; Method used	The populations of Rumex rupestris at Dunraven and Newborough are assessed regularly by NRW staff as part of NRWs SAC monitoring programme. Annual counts of the Marloes population are undertaken by the BSBI vice county recorder for Pembrokeshire.
6.12 Long term trend; Direction	The overall long-term trend in the population of Rumex rupestris in Wales is uncertain. Only one Welsh population (Newborough) was known in 1994, with the populations at Dunraven and Marloes only (re)discovered in 1996 and 2000 respectively. Both these 'new' sites where well established when discovered and the Dunraven site probably represents the relocation of the site of the 1934 record. Given the natural variablity in the size of individual populations and the absence of early records for two out of the three Welsh localities the overall trend must be considered uncertain.
6.16 Change and reason for change in population size	The change in reported population is based on updated count data and reflects a genuine change in population size.
6.17 Additional information	There is no reason to believe that the population structure of Rumex rupestris in Wales deviates significantly from the norm.

7.1 Sufficiency of area and quality of occupied habitat	At Dunraven the cliff fall in 2005 has still had impact on occupied habitat with no recruitment and actually a steady decline from 4 plants soon after the cliff fall, to two at present.There is still some unoccupied but suitable habitat in the near vicinity but very limited. There is also suitable, unoccupied habitat along the Vale of Galmorgan coastline but it is unlikely this will ever be occupied without human intervention. In Pembrokshire there have been various damaging rockfalls from 2011 and the winter storm of 2014. This has led to, hopefully a temporary, extinction of one of the two main locations at Hoopers point in Marloes Bay. There has also been a retraction at the other main site to the core colony at Watery Bay with losses of outlier colonies here. At Newborough the stream and pond side sites are still maintained and numbers of plants and the individual sites remain stable, all be it artificially maintained.
8.1 Characterisation of pressures/ threats	Pressures: There is a risk to the early-successional habitat for Shore Dock from agricultural inputs (A25 & A26), perhaps most significantly in the Dunraven and Pembrokeshire catchments, although these are relatively low risk as management at present is low intensity on land above and adjacent to the cliffs at these sites. Shore Dock relies on freshwater flushing of cliff and cliff base sites and any nutrient loading could encourage course species to dominate. The risk of human induced changes to site hydrology (B27), is also perceived to be low (perhaps most significantly as a side-effect of forestry at Newborough) but the direct effects of Forest and Plantation management, (B29), represents a significant pressure on available habitat here and the mobility of the species (Creer 2012). The presence of other dock species (especially R. conglomeratus) at all sites is seen as a low threat to the genetic integrity of populations through possible hybridisation (L06). There may be other factors and the small population sizes of some of the sites, especially Dunraven, could be seen as a threat but it may not be as damaging for such a species as Rumex rupestris (Kay 1998). A natural rock-fall at Dunraven Bay SAC in 2005 has greatly reduced the extent of tufaceous rock and rockfalls and storm damage affected some of the Pembrokeshire colonies in 2008 and more recently in 2014 (Evans 2015). The role of landslides and rockfalls (M05) is uncertain and could very probably be necessary for regeneration in large, stochastically sound populations but they are given as a high pressure here based on recent evidence. Climate change is linked to an overall increase in storm activity (N04), with winter storms having a significant impact on the Pembrokeshire populations in 2014. (Evans 2015) Threats: All current pressures are expected to continue to act over the next two reporting cycles and are given the same ranking as threats. There is not expected to be any expansion of forestry at Newborough, but significant conifer removal is still required specifically around the Cerrig duon and Pond sites to improve the connectivity between sub-populations here (Creer 2012). In terms of connection it is hoped the removal of trees would provide more open habitat and a degree of bare sand. It is uncertain if this will be undertaken hence it remains a medium threat.

9.5 List of main conservation measures	The existing 'adaptations to forest management (CB05)', including local tree removal together with the clearance of coarse streamside vegetation and removal of conifer seedlings (CI03 and CI05), at Newborough have been instrumental in maintaining this population in recent years. However, they provide only a temporary, mechanism for maintaining this now isolated population and a more widespread programme of tree clearance (CB05) would be required to restore the population to viability. A significant programme of sand dune rejuvenation and remobilisation has already been undertaken at Newborough Warren, Kenfig and Merthyr mawr (CL01) with more extensive works planned as part of a recently approved LIFE project. These interventions have already created areas of open damp sand/embryo slack which are likely to be suitable for Rumex rupestris, but further measures, potentially including seed translocation (CS01) will almost certainly be required if these areas are to be exploited by the species. The population at Dunraven is now critically small and especially vulnerable to further landslip or other chance event. Some form of bolstering of this population should be considered (CS01). This could involve re-establishing in and around the cliff population here and any re-introduction at Merthyr Mawr and Kenfig (where Rumex rupestris was previously recorded), the latest records from thes sites are 1954 and 1948 respectively. The populations at Marloes remain stable but with some retraction to core sites / loss of outlier populations (Evans 2001 - 2016). There could be scope to address any works to cliff base habitats if practical.
10.1 Future prospects of parameters	The broad distribution of Rumex rupestris in Wales is likely to remain stable in the short to medium-term, although there is potential for significant changes in the known range as a result of either the discovery of previously overlooked populations, or local extinction/ colonisation events. There is a proposal of a large-scale dune rejuvenation project on many key dune sites including Newborough, Kenfig and Merthyr mawr. This should provide more suitable habitat but may need more targeted proposals to establish Rumex rupestris here.
12.4 Short term trend of the population size within the network; Direction	See 6.9