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*)

ENGLAND

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 (England 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	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

BENNALLICK, I., 2018. Rumex rupestris survey. Unpublished report for Natural England

BIORET, F. & DANIELS, R. (2005). Assessments of threats to populations of Rumex rupestris Le Gall (Shore Dock) in Britain and France, in LEACH S. J., PAGE, C. N., PEYTOUREAU, Y. & SANDFORD, M. N. eds. Botanical Links in the Atlantic Arc, pp. 201-209. Botanical Society of the British Isles, London.

DANIELS, R. E. & MOY, I. L. (1998). Species Recovery Programme - Shore Dock (Rumex rupestris Le Gall). Second report. Report to English nature, Species Recovery Programme.

KING, M. P. (1989). An investigation into the current status and ecology of the shore dock Rumex rupestris in Devon and Cornwall. M. Sc. Thesis, University College, London.

KING, M. P. (2002). Shore Dock Rumex rupestris in 2001. Plantlife Report No. 196

KING, M. P. (2003-2004). Species Dossier for Rumex rupestris Le Gall. Plantlife. Http://www.plantlife.org.uk/downloads/species_dossier/Rumex_rupestris_dossier

KING, M. P., MCDONNELL, E. J., LEACH, S. J. & WIGGINGTON, M. J. (1999). Rumex rupestris le Gall, in WIGGINGTON, M. J. Ed. British Red Data Books. 1. Vascular Plants, pp 320-321. JNCC, Peterborough

LEACH S.J., McDONNELL, E.J., PARKER S.J., and REAY P. J. 2009. Rumex rupestris Le Gall at Soar Mill Cove, S. Devon. BSBI News 110: 27-29 McDONNELL, E.J. (1995). The status of shore dock (Rumex rupestris Le Gall) in Britain in 1994. Report to English Nature, Species Recovery programme.

McDONNELL, E.J. (1998). Rumex rupestris (Shore Dock). Report on fieldwork. Plantlife report No. 101.

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McDONNELL, E.J. (1999). Rumex rupestris (Shore Dock). Report on 1998 fieldwork. Plantlife report No. 128.
McDONNELL, E.J. & KING, M.P. (2000). Rumex rupestris (Shore Dock). Report on fieldwork undertaken in 1999. Plantlife Report No. 140.
SMITH R., HODGSON B. & ISON J. (2017). A New Flora of Devon. pp390-391 The Devonshire Association for the Advancement of Science, Literature & the Arts, Exeter.
HOLYOAK, DAVID. (2000). Hybridisation between Rumex rupestris Le Gall (Polygonaceae) and other docks. Watsonia. 23. 83-92.

5. Range

5.1 Surface area (km²)		
5.2 Short-term trend Period		
5.3 Short-term trend Direction	Decreasing (-)	
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	2013-2017	
6.2 Population size (in reporting unit)	a) Unit	number of individuals (i)
	b) Minimum	
	c) Maximum	
	d) Best single value	317
6.3 Type of estimate	Minimum	
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		

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6.6 Population size Method used	Complete survey or a statistically robust estimate	
6.7 Short-term trend Period	2007-2018	
6.8 Short-term trend Direction	Stable (0)	
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	1994-2017	
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		
6.15 Favourable reference population (using the unit in 6.2 or 6.4)	a) Population size b) Operator c) Unknown d) Method	200 with unit N/A
6.16 Change and reason for change in population size	No change The change is mainly due to:	
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)?	Unknown
	b) Is there a sufficiently large area of occupied AND unoccupied habitat of suitable quality (to maintain the species at FCS)?	Unknown
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	2007-2017	
7.4 Short-term trend Direction	Unknown (x)	
7.5 Short-term trend Method used	Based mainly on expert opinion with very limited 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

Sea-level and wave exposure changes due to climate change (N04)	M
Collapse of terrain, landslide (M05)	M
Other human intrusions and disturbance not mentioned above (H08)	M
Droughts and decreases in precipitation due to climate change (N02)	M

Threat	Ranking
Sea-level and wave exposure changes due to climate change (N04)	H
Collapse of terrain, landslide (M05)	H
Other human intrusions and disturbance not mentioned above (H08)	M
Droughts and decreases in precipitation due to climate change (N02)	M

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: Long-term results (after 2030)

9.5 List of main conservation measures

Minimise/prevent impacts of geological and natural catastrophes (CL02)

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

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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	205
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	Unknown (x)	
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

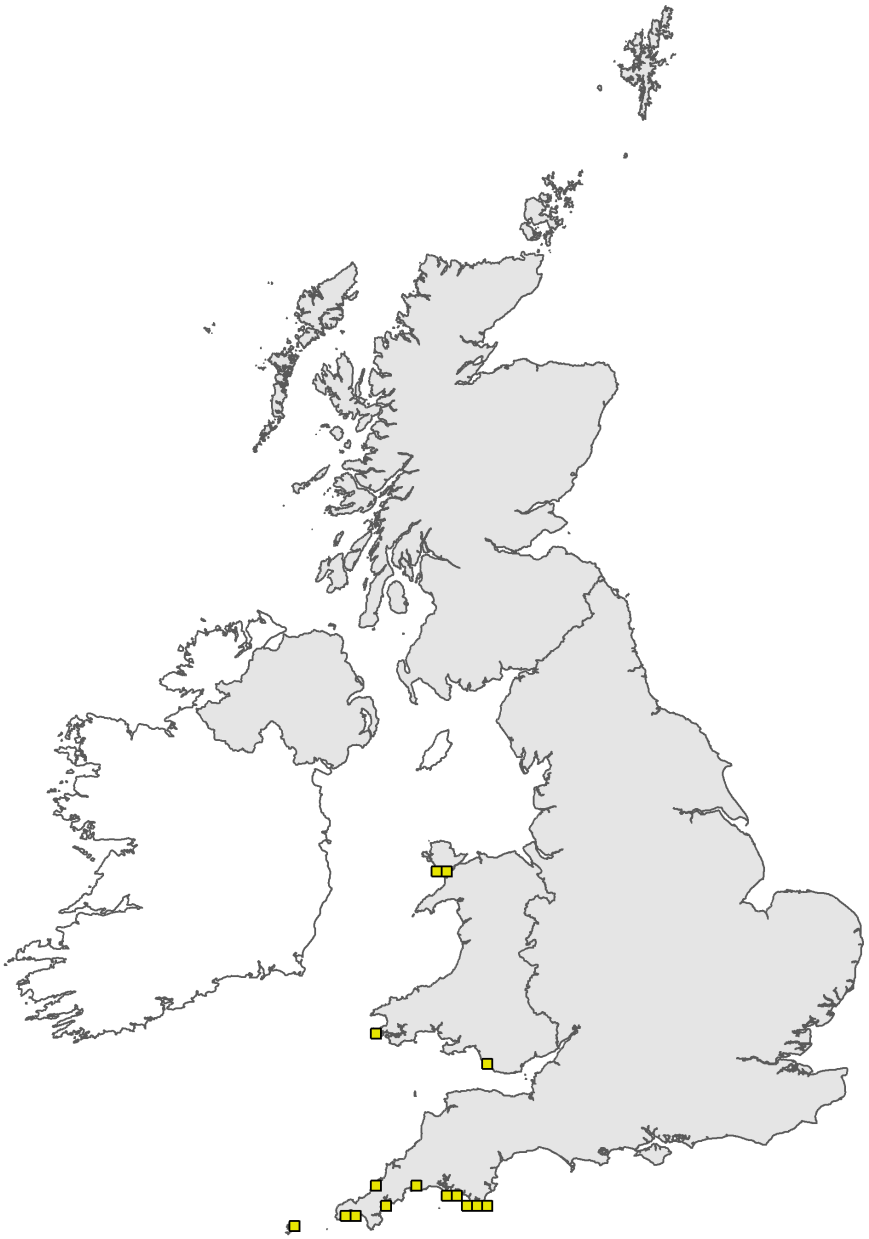

Figure 1: UK distribution map for S1441 - Shore dock (*Rumex rupestris*). Coastline boundary derived from the Oil and Gas Authority's OGA and Lloyd's Register SNS Regional Geological Maps (Open Source). Open Government Licence v3 (OGL). Contains data © 2017 Oil and Gas Authority.

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
2.1 Sensitive species	Although rare and localised this species is not known to have been targeted by collectors and, as in previous reporting rounds, is therefore not considered sensitive.
2.2 Year or Period	Full survey of known sites in 2017. Post 2012 records included, but no sites known where plants were confirmed as present from 2013 onwards but not seen in 2017 survey. Mapped records for Dorset are considered doubtful or unreliable by the BSBI VC recoder for Dorset (pers. comm.) and have been ignored for reporting and mapping purposes.
2.3 Distribution map	10km data (derived from grids at 10, 8, 6 figure resolution) sent to George Hinton 8-5-18
2.4 Distribution map; Method used	Full (near-complete) survey of known sites commissioned and undertaken in 2017 (Bennallick, 2018). Review of known post 2012 records included, but no sites known where plants were confirmed as present from 2013 onwards but not seen in 2017 survey. This species does fluctuate in numbers at most sites and is prone to come and go so it is possible that the species might still persist in or recolonise sites where none was found in 2017. The ideal would be to survey in multiple seasons.

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

Field label	Note
5.3 Short term trend; Direction	This is a provisional assessment as I have yet to see the figures for the range, but presumably range will have at least slightly decreased as a number of hectads where the species was found in the previous reporting round yielded no plants in the 2017 survey. Found in only 11 hectads in 2017; mapped for 17 in England in 2007 (plus a suspect Dorset record). Occupied hectads is thus certainly reduced, although the species might reaapear in a number of them, as it tends to. The overall trand is certainly downwards though.
5.11 Change and reason for change in surface area of range	Assuming the range has decreased (see 5.3 - maps and range area to be calculated but AOO is reduced) then the change seems likely to be real as there were a number of sites where plants were mapped in 2007 (2nd report) where they were not found in 2017. Even allowing for the fact that this species can come and go at some sites, and that only one year of full survey data is available for most sites, the losses are significant and there is a plausible reason for the change, namely climate change and specifically increased storm frequency and summer drought (although I only have anecodtal evidence of change, the plant is known to have been lost from beach sites during storms during this reporting round and drought has reportedly impacted on the main dune slack site).
6.1 Year or Period	2013-2018 but full survey undertaken in 2017 only
6.2 Population size	Individuals was used as the reporting unit in line with EU recommendations. As last time we note that in some cases it is not clear what constitutes an invidual plant. Clumps are counted as individuals even though they might not always be the same genet. Any inaccuracies in this regard are likely to be similar to previous surveys so comparisons between years are considered valid. This species is prone to fluctuations in population e.g. when upper parts of beach sites are washed away by storms and plants subsequently recolonise. We only have data from one year (2017) but we have no reason to consider it was a particularly good or bad year for the species. Some sites were impacted by severe storms in winter 2013/14 but they had three seasons to recover from this.

6.6 Population size; Method used	Almost all recent sites were visited in the 2017 survey and data from the reporting period was also souight for these and other recent sites. Individuals was used as the reporting unit in line with EU recommendations. As last time we note that in some cases it is not clear what constitutes an invidual plant. Clumps are counted as individuals even though they might not always be the same genet. Any inaccuracies in this regard are likely to be similar to previous surveys so comparisons between years are considered valid. The count in 2017 comprised 215 fruiting plants and 102 vegetative plants.
6.7 Short term trend; Period	2007-2018 is the recommended period. The second report (2007) included a near-comprehensive survey in 2005, which covered nearly all known extant localities, allowing for a fair comparison with this report.
6.8 Short term trend; Direction	The total of 317 plants in the current reporting round compares favourably with the reported 222 estimated for the UK 2007. More recently a minimum of 367 and maximum of 953 plants in the third round shows a clear recent decline.
6.10 Short term trend; Method used	Good survey data from almost complete surveys for the two reporting periods means comparisons between them are valid.
6.11 Long term trend; Period	This is an extension of the long term trend period used in the last reporting round
6.15 Favourable reference population	Thie figure used in the previous round was 200-500 so 200 is the minimum.
6.16 Change and reason for change in population size	Reported as no change. FRV of 200 (-500 - see above) and reported population in mid 1990s of about 200 is lower than the number found in 2017. The latter figure does include vegetative plants, which may not have been included in the earlier figures due to lower confidence in vegetative identification. Indeed, we suspect the FRV is rather low and given that populations in the 3rd report were up to 953 if the maximum counts in the reporting period are added for each occupied site. This, along with the lack of plants in a number of previously occupied sites suggests that in fact the species has declined, although it is hard to be sure from a single year's data.
7.1 Sufficiency of area and quality of occupied habitat	R. rupestris occurs in a small number of closely related coastal habitats, and only rarely now in dune slacks. It occurs within a relatively narrow zone above High Water Mark, in the presence of fresh-water, often where dynamic processes of coastal erosion constantly create new bare ground. It is able to withstand considerable salt deposition from sea spray and may be able to survive short periods of inundation during winter storms. Principal habitats are: - The junction between head deposits (or more rarely raised beaches) and underlying bedrock (usually slates) where spring-lines form. - On damp cliff ledges, in seepage zones at or near the base of cliffs, or in small pools on wave cut platforms. - In rock crevices, or between beach boulders, but only where there is a submerged supply of fresh-water. - The strandline of fine shingle or sandy beaches; plants survive only a short time. - Beside streams, usually where these enter beaches. - In dune slacks or their edges. The area of occupied habitat is unlikely to have changed significantly in the period concerned. Some aspects of its quality might have been reduced. Drier years have been reported to have affected the main dune slack population and drought could also potentially affect the cliff and beach-head freshwater seepages (although we have no direct evidence of this). In addition, increased rates of coastal erosion and removal of sand and other substrates from beaches during increasing storm events have washed away many plants and possibly resulted in the loss of some populations - Scilly appears to have been particularly affected in this regard. Thus whether the area, and curucally the quality in terms of suitability for R. rupestris, of habitat is sufficient to maintain a viable population is unknown.

7.2 Sufficiency of area and quality of occupied habitat; Method used	We can be confident there has been no significant direct loss of habitat. We suspect some aspects of habitat quality might have been reduced. Drier years have been reported to have affected the main dune slack population and drought could potentially affect the cliff and beach-head freshwater seepages that the plant usually occupies (although we have no evidence of this). In addition, increased rates of coastal erosion and removal of sand and other substrates from beaches during increasing storm events have washed away many plants and possibly resulted in the loss of some populations - Scilly appears to have been particularly affected in this regard. Thus whether the area, and curucally the quality in terms of suitability for R. rupestris, of habitat is sufficient to maintain a viable population is unknown.
9.1 Status of measures	SACs and SSSIs notified so habitat is protected from more usual types of damage but it is very hard to protect against climate change and increased coastal erosion.
9.3 Location of the measures taken	7 SACs, and SSSIs. But unable to take effective measures to mitigate for climate change.
9.4 Response to the measures	Protection from damaging land management praqctices will not help with the apparent problems caused by climate change.
10.1 Future prospects of parameters	Likely to decline in the long term - Scilly populations perhaps particularly vulverable to sea level rise and increased erosion. Perhaps no surprise that these seem to be in the worst shape condition with only one plant found in 2017.
12.1 Population size inside the pSCIs, SCIs and SACs network	205 of the 317 plants found in the 2017 survey are in SACs.
12.2 Type of estimate	Full survey although Annet sites not accessed. Unlikely to have made a significant difference to the results as the population these has historically been small.
12.4 Short term trend of the population size within the network; Direction	The number of plants in the SAC network was not reported suring the second round so the trend is uncertain.