

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

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:

S1614 - Creeping marshwort (*Apium repens*)

IMPORTANT NOTE – PLEASE READ

- The country-level reporting information contained in this document is a contribution to the Article 17 UK report for the habitat/species concerned.
- It has been provided by **Natural England** and refers only to the state of the habitat/species in **England** - it does not constitute an assessment for the whole of the UK.
- The Article 17 UK Approach document provides details on how this information has been used and, combined with information supplied by other Statutory Nature Conservation Bodies
- The format of the document is closely aligned to that set out by the European Commission for Member State reporting – as a result, some of the fields are not applicable at a country-level and have deliberately been left blank – in addition, the content of most fields is constrained by the EC reporting categories.

Reporting format on the 'main results of the surveillance under Article 11' for Annex II, IV & V species

<i>Field name</i>	<i>Brief explanations</i>	
0.2 Species	0.2.1 Species code	S1614
	0.2.2 Species scientific name	<i>Apium repens</i>
	0.2.3 Alternative species scientific name Optional	
	0.2.4 Common name Optional	Creeping Marshwort

1.1 Maps		
1.1.1 Distribution map		Sensitive False



1.1.2 Method used - map	Complete survey/Complete survey or a statistically robust estimate Plants on the three Oxford sites are closely monitored each year by the Ashmolean Natural History Society. The Essex site is also closely monitored with the last available report from the 2010 season, the eighth consecutive year of monitoring at the site. These are the only current sites for the species so coverage is complete.
1.1.3 Year or period	2007-2012 Default period can be used as the monitoring coverage is complete.

1.1.4 Additional distribution map	False
1.1.5 Range map	

2.1 Biogeographical region & marine regions	ATL
2.2 Published sources	<p>"Apium repens Conservation Report, 2010. Unpublished report about monitoring at Walthamstow Marshes, Brian Wurzell, February 22nd 2011</p> <p>Ashmolean Natural History Society of Oxfordshire, Rare Plants Group. Creeping marshwort, <i>Apium repens</i>, Binsey Green SLINC Oxon. Unpublished report, C. R. Lambrick, 18th Sept 2012</p> <p>Ashmolean Natural History Society of Oxfordshire, Rare Plants Group. <i>Apium repens</i>, Creeping marshwort, North Hinksey 2012. Unpublished report. C. R. Lambrick, 18th Sept 2012</p> <p>Ashmolean Natural History Society of Oxfordshire, Rare Plants Group: Annual monitoring reports (2007-2012).</p> <p>Lambrick C. (2007). The plants we monitor - <i>Apium repens</i>, Creeping Marshwort. Ashmolean Natural History Society of Oxfordshire Rare Plants Group 2007 Newsletter http://www.anhso.org.uk/</p> <p>Lambrick C. (2008). The plants we monitor - <i>Apium repens</i>, Creeping Marshwort. Ashmolean Natural History Society of Oxfordshire Rare Plants Group 2008 Newsletter http://www.anhso.org.uk/</p> <p>Lambrick C. (2009). The plants we monitor - <i>Apium repens</i>, Creeping Marshwort. Ashmolean Natural History Society of Oxfordshire Rare Plants Group 2009 Newsletter http://www.anhso.org.uk/</p> <p>Online Atlas of the British Flora. Http://www.brc.ac.uk/plantatlas/index.php?q=plant/apium-repens</p> <p>Rosenthal, G. & Lederbogen D. (2008). Response of the clonal plant <i>Apium repens</i> (Jacq.) Lag. To extensive grazing. <i>Flora</i> 203, 141–151"</p>

2.3 Range

2.3.1 Surface area Range									
2.3.2 Method used Surface area of Range	Complete survey/ Complete survey or a statistically robust estimate Plants on the three Oxford sites are closely monitored each year by the Ashmolean Natural History Society. The Essex site is also closely monitored with the last available report from the 2010 season, the eighth consecutive year of monitoring at the site. These are the only current sites for the species so coverage is complete.								
2.3.3 Short-term trend Period	2001-2012 2001-2012 is used as survey data is considered to be complete.								
2.3.4 Short term trend Trend direction	stable Considered to be stable as the four sites occupied during the current reporting period are the same ones as were occupied in the 2001-2006 report. They now occupy three hectads, two adjacent ones on Oxford and one in Essex. The 2006 report refers to two occupied hectads but this is presumable an error.								
2.3.5 Short-term trend Magnitude	<table border="1"> <tr> <td>a) Minimum</td> <td>0</td> </tr> <tr> <td>b) Maximum</td> <td>0</td> </tr> </table>	a) Minimum	0	b) Maximum	0				
a) Minimum	0								
b) Maximum	0								
2.3.6 Long-term trend Period	1989-2012								
2.3.7 Long-term trend Trend direction	increase In the period 1989-2012 the plant has appeared at a new site in Essex (first seen in 2002 and still present); was introduced to North Hinksey in the 1990s where it is still present; reappeared at Binsey Green in the 1990s and was present up to 2007 but not subsequently; and continued to be recorded on the longest standing site at Port Meadow. Reported from about ten British sites during the 20th century but confusion with forms of <i>Apium nodiflorum</i> casts several into doubt. Records from East Yorkshire (and Fife, Scotland), at least, are considered to be genuine. Putative hybrids, which closely resemble <i>A. repens</i> , also confuse the picture.								
2.3.8 Long-term trend Magnitude Optional	<table border="1"> <tr> <td>a) Minimum</td> <td>300</td> </tr> <tr> <td colspan="2">At the start of the period the plant was known from a single site. It is currently known from at least three sites, with a fourth having been colonised temporarily but where it was last seen in 2008.</td> </tr> <tr> <td>b) Maximum</td> <td>400</td> </tr> <tr> <td colspan="2">See 2.3.8a - during the current reporting period the plant was present at a maximum of four sites (which would be a 400% increase), but it was last seen at Binsey Green in 2007.</td> </tr> </table>	a) Minimum	300	At the start of the period the plant was known from a single site. It is currently known from at least three sites, with a fourth having been colonised temporarily but where it was last seen in 2008.		b) Maximum	400	See 2.3.8a - during the current reporting period the plant was present at a maximum of four sites (which would be a 400% increase), but it was last seen at Binsey Green in 2007.	
a) Minimum	300								
At the start of the period the plant was known from a single site. It is currently known from at least three sites, with a fourth having been colonised temporarily but where it was last seen in 2008.									
b) Maximum	400								
See 2.3.8a - during the current reporting period the plant was present at a maximum of four sites (which would be a 400% increase), but it was last seen at Binsey Green in 2007.									

2.3.9 Favourable reference range	a) Value in km²	400
	Entire current population is within England. 300km ² was the favourable reference range in 2006, chosen to represent an increase on the known range at the time. Range is still the same but in fact occupies three 10km squares, as it did in 2006. The FRR is therefore raised by one 10km square. Updated NE Feb 13.	
	b) Operator for FRR	
	c) FRR is unknown (indicated by "true")	False
	d) Method used to set FRR	<p>This species has always had a restricted range in the UK, although the current range is less than occurred in the middle of the twentieth century. It is currently present in only two catchment areas, with multiple sites in one of these catchments. This means that the plant is at substantial risk of extinction from chance events affecting the catchments, and it is unlikely to be viable in the long-term. Expert opinion is that range should include at least one additional catchment to counteract this shared risk. Thus, the minimum favourable reference range has been set as 300 km². This figure would still be low (the extent of occurrence for the date class 1930-1969 is calculated at 610 km²), and consideration needs to be given as to whether this really would be sufficient for long-term viability. This low-level of increase to reach viability may be justified since 1994 the trend in range has been increasing, although this has been in part due to intensive conservation care. Conservation for this species has a long history, with the classic Oxfordshire site first designated in 1955 (under the 1949 Act). This has ensured the maintenance of this site for the species, whilst introductions and conservation management at other sites have led to an increase in recent years. It is likely that without active conservation work the range for this species would not have increased since 1994, although the exact level of this impact is hard to determine.</p>

2.3.10 Reason for change Is the difference between the reported value in 2.3.1 and the previous reporting round mainly due to...	a) Genuine change?	False
	b) Improved knowledge/more accurate data?	True
	c) Use of different method (e.g. "Range tool")?	False

2.4 Population		
2.4.1 Population size estimation (using individuals or agreed exceptions where possible)	a) Unit	
	b) Minimum	
	c) Maximum	
2.4.2 Population size estimation (using population unit other than individuals) Optional (<i>if 2.4.1 filled in</i>)	a) Unit	number of localities
	Localities is chosen as the population unit, as it was in the last reporting round. Locality is defined as a single management unit separated from other localities by unsuitable habitat. There are sub-populations within the localities occupying suitable pockets of habitat but linked by management continuity (e.g. with similar stock grazing and subject to the same water management regime).	
	This species does not lend itself to counts of individuals. Numbers fluctuate widely from year to year depending on site conditions, notably summer flooding and grazing. Populations can survive summer floods by vegetative spread to suitable areas. The growth form of the plant makes counting individuals impractical. We do not have information of this kind for comparison. NE feb 13	
	b) Minimum	3
	c) Maximum	4
2.4.3 Additional information on population estimates / conversion Optional	a) Definition of "locality"	Locality is defined as a single management unit separated from other localities by unsuitable habitat. There are sub-populations within the localities occupying suitable pockets of habitat but linked by management continuity (e.g. with similar stock grazing and subject to

		the same water management regime).
	b) Method to convert data	
	c) Problems encountered to provide population size estimation	
2.4.4 Year or period	2007-2012	
2.4.5 Method used Population size	Complete survey/Complete survey or a statistically robust estimate	
	All localities are monitored annually.	
2.4.6 Short-term trend Period	2001-2012	
	Four localities were occupied in the last reporting round (2001-2006) and a total of four sites occupied during the current reporting period 2007-2012. One site has had no records of plants since 2007 and the vegetation there is reported to be insufficiently open because of undergrazing. This site is currently unfavourable for the plant. It could be argued that there has been a short term decrease from four to three localities.	
2.4.7 Short-term trend Trend direction	stable	
2.4.8 Short-term trend Magnitude	a) Minimum	0
	b) Maximum	0
	c) Confidence interval	
2.4.9 Short-term trend Method used	Complete survey/Complete survey or a statistically robust estimate	
2.4.10 Long-term trend – Period	1989-2012	
2.4.11 Long-term trend Trend direction	increase	

2.4.12 Long-term trend Magnitude Optional	a) Minimum	300
	The number of sites has gone from one to at least three (at Binsey Common, a fourth site, plants were last seen in 2007 and have been searched for unsuccessfully since).	
	b) Maximum	400
	Plants were present at Binsey Common, a fourth site, during the current reporting period - plants were last seen in 2007 but have been searched for unsuccessfully since.	
	c) Confidence interval	
2.4.13 Long term trend Method used	3	
2.4.14 Favourable reference population	a) Number of individuals/agreed exceptions/other units	6
	This is the same as was used in 2006.	
	b) Operator	
	c) FRP is unknown indicated by "true"	False
	d) Method used to set FRP	The decision tree in Note 1 was been used as a guide in determining the favourable reference population estimate in the last reporting round (see 'Assessing Conservation Status: UK Approach').
2.4.15 Reason for change Is the difference between the value reported at 2.4.1 or 2.4.2 and the previous reporting round mainly due to:	a) Genuine change?	False
	b) Improved knowledge/more accurate data?	False
	c) Use of different method (e.g.	False

	"Range tool"?)	

2.5 Habitat for the species		
2.5.1 Area estimation	0.0006	
	The area covered by the plant at the Oxford sites varies between 100 and 600 m ² (C. Lambrick, pers comm.). The area covered by the Walthamstow population has not been quantified but is believed to be considerably smaller.	
	It is unknown whether the amount of habitat in the UK is sufficient to support a viable population of the species.	
2.5.2 Year or period	2007-2012	
2.5.3 Method used Habitat for the species	Estimate based on expert opinion with no or minimal sampling	
	Area given is a the maximum extent of measured occupied habitat at the Oxfordshire sites. The area fluctuates annually. There might be more suitable but unoccupied habitat, indeed this is likely, but the extent has not been quantified. Although this species is found on unimproved flood pasture, this does not mean that all unimproved flood pasture across the country should be considered as 'suitable', because the species appears to have very exacting requirements, which are not yet fully understood. Calculating area of suitable habitat is therefore problematic.	
2.5.4 Quality of the habitat	a) Habitat quality	Moderate
	b) Assessment method	This is considered to be moderate because the plant is still present and doing well at three sites, because of targeted conservation management. At the fourth site the condition is unfavourable as the vegetation is insufficiently open due to insufficient grazing. On balance moderate seems appropriate.
	This is considered to be moderate because the plant is still present and doing well at three sites, because of targeted conservation management. At the fourth site the condition is unfavourable as the vegetation is insufficiently open due to inadequate grazing. On balance moderate seems appropriate.	
2.5.5 Short-term trend Period	2001-2012	
2.5.6 Short-term trend Trend direction	stable	
2.5.7 Long-term trend Period	1989-2012	
2.5.8 Long-term trend	increase	

Trend direction	At the start of the reference period the plant was only known from a single site, still the main site. It has since been recorded at three additional sites. The overall area of occupied habitat has almost certainly increased over this period thanks to the positive conservation management of sites and the discovery or colonisation (and at one site introduction) of the plant at new sites. Given the large annual fluctuations in populations of this plant, due to factors such as water levels and site management, it is difficult to quantify the change with precision.	
2.5.9 Area of suitable habitat for the species	a) Value in km²	0
	Although this species is found on unimproved flood pasture, this does not mean that all unimproved flood pasture across the country should be considered as 'suitable', because the species appears to have very exacting requirements, which are not yet fully understood. Calculating area of suitable habitat is therefore problematic.	
2.5.10 Reason for change Is the difference between the value reported at 2.5.1 and the previous reporting round mainly due to	a) Genuine change?	False
	b) Improved knowledge/more accurate data?	False
	c) Use of different method (e.g. "Range tool")?	False

2.6 Main pressures		
a) Pressure	b) Ranking	c) Pollution qualifier
	H = high importance M = medium importance L = low importance	
A04: grazing	H	
J02: human induced changes in hydraulic conditions	H	
I01: invasive non-native species	M	

Grazing is important in maintaining a sufficiently open sward for the plant through poaching and the removal of herbage including more competitive species. Overgrazing in late summer, however, has been shown to reduce seed production on some of the Oxford sites by direct removal of plants. Changes in water levels at the sites have a major impact on numbers. Recent unusual summer flooding can kill the plants, though they can then do well on the bare ground in subsequent seasons. The invasive alien *Crassula helmsii* is present at one site, though efforts are being made to eradicate it from there and currently the population

is limited in extent and not yet competing with *Apium repens*.

2.6.1 Method used – Pressures

based exclusively or to a larger extent on real data from sites/occurrences or other data sources

2.7 Threats

a) Threat	b) Ranking	c) Pollution qualifier
	H = high importance M = medium importance L = low importance	
A04: grazing	H	
J02: human induced changes in hydraulic conditions	H	
E01: Urbanised areas, human habitation	M	
H01: Pollution to surface waters (limnic & terrestrial, marine & brackish)	M	
I01: invasive non-native species	M	

Although overgrazing in late summer can cause some damage and limit seed return it is the cessation of grazing that is judged to be a greater threat. The plant has been absent from once site since 2009 since a reduction in grazing occurred.

Summer flooding in recent wet summers has been problematic for the plant as the bare mud it requires is underwater. Though vegetative fragments can break off and float away under these conditions, sometimes establishing new patches, winter flooding followed by gradual drying of the site through the summer is the preferred regime. New drainage that would disrupt the preferred winter flooding regime would be problematic.

The invasive alien plant *Crassula helmsii* is present on one site. This could out-compete the plant should it spread to occupy a larger area of the site. Efforts are being made to eradicate it from the one site where it is found (hand removal by volunteers).

Residential development on adjacent land may increase the pressures to reduce large scale winter flooding in the Port Meadow area and possibly to use the site to hold water during summer flooding events.

2.7.1 Method used – Threats

expert opinion

2.8 Complementary information

2.8.1 Justification of % thresholds for trends

2.8.2 Other relevant information

2.8.3 Trans-boundary assessment	

2.9 Conclusions (*assessment of conservation status at end of reporting period*)

Please refer to the United Kingdom assessment for this species.

3 Natura 2000 coverage & conservation measures - Annex II species (*only applies to species listed under Annex II of the Directive*)

3.1 Population

3.1.1 Population size	a) Unit	number of localities
Estimation of population size included in the SAC network		
	b) Minimum	1
	The plant is present on one SAC, which is considered to be in favourable condition, and one additional SSSI, which is currently considered to be in unfavourable declining condition and where this species is not a notified feature.	
	c) Maximum	1
3.1.2 Method used	Complete survey/Complete survey or a statistically robust estimate	
3.1.3 Trend of population size within the network (short-term trend)	stable	

3.2 Conservation measures

Conservation measures taken (i.e. already being implemented) within the reporting period and provided information about their importance, location and evaluation.

3.2.1 Measure	3.2.2 Type	3.2.3 Ranking	3.2.4 Location	3.2.5 Broad evaluation of the measure
		H = high importance	where the measure is PRIMARILY applied	

	a) Legal/statutory	b) Administrative	c) Contractual	d) Recurrent	e) One-off	M = medium importance L = low importance	a) Inside	b) Outside	c) Both inside & outside	a) Maintain	b) Enhance	c) Long term	d) No effect	e) Unknown	f) Not evaluated
2.1: Maintaining grasslands and other open habitats		Y	Y			H			Y		Y				
6.1: Establish protected areas/sites	Y					H	Y				Y				
6.3: Legal protection of habitats and species	Y					M			Y	Y					

The two largest sites are both currently under agri-environment schemes. Both the main sites are protected: one is SSSI and the other SAC. The plant is also protected by law but it is unobtrusive and illegal collecting is not considered to be a high level threat.