



UK priority species pages – Version 2

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SPECIES PAGES FOR 2007 UK BAP PRIORITY SPECIES

(see endnotes for an explanation of the various components of this compilation).

Anisus vorticulus (Troschel, 1834)

Little Whirlpool Ram's-horn Snail

1 General information

| | |
|---------------------|---------------------------|
| Level 1 | Terrestrial invertebrates |
| Level 2 | mollusc |
| On 1997 UK BAP list | Species Action Plan |

2 UK BAP criteriaⁱ

| 1. International threat | 2. International responsibility (2a) + moderate decline in UK (2b) | 3. Marked decline in the UK | 4. Other important factor(s) |
|-------------------------|--|-----------------------------|------------------------------|
| False | False | False | True |

3 Evidence for Criteriaⁱⁱ

| | |
|--------------|--|
| Criterion 1 | |
| Criterion 2a | |
| Criterion 2b | |
| Criterion 3 | |
| Criterion 4 | <p>For a species on the current Priority List, factors that caused the original decline are still operating or the species' population has not recovered to a point where it is likely to be viable in the long term.</p> <p>A. vorticulus is thought to occur throughout central and southern Europe and is local or rare throughout its range. It is known to be rare in France, Germany, Czech Republic, Netherlands and Poland.</p> <p>Distribution through north-west Europe poorly known. Scarcity across Europe reflected by Red Data Book inclusion. Listed in red data books for Austria, Germany (four regions); Sweden & Switzerland.</p> <p>between 30 and 80% decline over 44 years (1960-2004). Populations lost from approx. 10 sites between 1950-1990, including Lewes Brooks (East Sussex), Shortwood Pond (Middx.), River Tud, Little Ouse, Upton Broad and Yare (Norfolk) (Willing and Killeen, 1999; Killeen, 1999). Population of Pevensey Levels believed to be in decline, recent surveys of Arun Valley (2004) show substantial decline in a four – five year period (approx. 60%) since late 1990's (Willing, 2005).</p> |

4 Distribution by Country

| England | Scotland | Wales | Northern Ireland | International Waters |
|---------|----------|-------|------------------|----------------------|
| Y | N | N | N | |

5 Distribution Information

| | |
|--|--|
| Distribution data source | BAP 2005 reporting |
| Distribution data notes | Restricted to three main areas: Arun Valley (West Sussex) where there has been an approximately 50 - 60% decline since 2000), Pevensey Levels (very limited distribution but monitoring in 2006 confirmed satabilised position and locally in Broads area where locally just stable. Popoulations seemingly extinct on Lewes Brooks and Staines. |
| number of sites (where less than or equal to 10) | 7 |
| Units used for number of sites | Site(s) / population(s) |

6 Actions identified by expertsⁱⁱⁱ

| Action number | Action text | Reporting category |
|---------------|--|--|
| 1 | Site management: Management guidelines, drawn up as a result of earlier BAP work, need to be implemented. All too often this species is suffering because of a reluctance of land managers to follow ditch management procedures that have been frequently advocated in survey / monitoring reports produced for the Environment Agency and / or Natural England. Work in 1998, 1999 on Amberley Wildbrooks demonstrated that `stagger clearance` of ditches is one of few management techniques that appears to retain populations if a ditch is cleared. All ditches currently supporting the species (or where it was known to have been present in the last 10 years) need to be managed to maintain or encourage the recovery of populations. | Species-specific prescriptive habitat action |
| 2 | Study (often including discussions with farmers /other land managers) should be made of those traditional ditch management techniques that have retained sound, recruiting populations in Norfolk/Suffolk and Pevensey Levels sites. Justification: `good` recruiting populations of the snail are present in some ditches in both areas that have been managed by `traditional` means; studies of ditch management histories need to take place in such areas to try to understand what ditch clearance regimes have allowed A. vorticulus populations to be retained. | Species-specific research |
| 3 | Ongoing monitoring of all known populations (East Anglia, Pevensey, Arun Valley) is needed to understand the status of the species at existing sites. This information is needed to allow reporting against success criteria (monitoring protocols produced for specific areas). | Species-specific monitoring/survey |
| 4 | Research (possible PhD) on colonisation, translocation methodologies that might help to increase extent of occupied habitat. | Species-specific research |

7 Signpost to Priority Habitat^{iv}

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| Priority Habitat Name |
| Improved Grassland: Coastal and Floodplain Grazing Marsh |

8 Additional information from specialists^v

| Attribute | Value |
|--|--|
| NBN current scientific name | Anisus vorticulus |
| NBN common name | Little Whirlpool Ram's-horn Snail |
| classification level 1 | Terrestrial invertebrates |
| classification level 2 | mollusc |
| Crit 1 Global threat | Not assessed |
| Crit 1 European threat | A. vorticulus is thought to occur throughout central and southern Europe and is local or rare throughout its range. It is known to be rare in France, Germany, Czech Republic, Netherlands and Poland. Distribution through north-west Europe poorly known. |
| Crit 1 Supporting info | Scarcity across Europe reflected by Red Data Book inclusion. Listed in red data books for Austria, Germany (four regions); Sweden & Switzerland. |
| Crit 2 % of global pop | Not formally assessed |
| Crit 2 % of European popn | Not formally assessed* |
| Crit 2 % of int population Supporting info | English population probably <25% world total |
| Crit 2 Decline % | Between 30% and 80% |
| Crit 2 Decline no of years | 34 |
| Crit 2 Decline dates | 1960 - 2004 |
| Crit 2 declines supporting info | Populations lost from approx. 10 sites between 1950-1990, including Lewes Brooks (East Sussex), Shortwood Pond (Middx.), River Tud, Little Ouse, Upton Broad and Yare (Norfolk) (Willing and Killeen, 1999; Killeen, 1999). Population of Pevensey Levels believed to be in decline, recent surveys of Arun Valley (2004) show substantial decline in a four – five year period (approx. 60%) since late 1990`s (Willing, 2005). |
| Crit 3 Decline % | Between 30% and 80% |
| Crit 3 Decline no of years | 34 |
| Crit 3 Decline dates | 1960-2004 |
| Crit 3 supporting info | Populations lost from approx. 10 sites between 1950-1990, including Lewes Brooks (East Sussex), Shortwood Pond (Middx.), River Tud, Little Ouse, Upton Broad and Yare (Norfolk) (Willing and Killeen, 1999; Killeen, 1999). Population of Pevensey Levels believed to be in decline, recent surveys of Arun Valley (2004) show substantial decline in a four – five year period (approx. 60%) since late 1990`s (Willing, 2005). |

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| <p>Crit 4 other important factors</p> | <p>The species has always been of very local distribution through southern and eastern England. The 2004 surveys of the Arun Valley have indicated that appropriate ditch management appears to be a crucial factor in maintaining healthy populations at sites, over-frequency clearing within the Arun Valley is thought to be the main cause of the significant decline (Willing, 2005). Good water quality is also essential to a site supporting <i>A. vorticulus</i> (Watson, 2002). It had been thought that recent winter flooding at many of the Arun marshes would have allowed the species to extend its range within the Arun sites but this hasn't been observed. This indicates that the species is also a poor coloniser or if colonisation is successful insufficient time is being allowed before ditch clearance to enable populations to become firmly securely established (Willing, 2005).</p> |
| <p>Sources</p> | <p>Bratton, J. H. 1991. British Red Data Books:3. Invertebrates other than insects. JNCC, Peterborough. Kerney, M. 1999. Atlas of the Land & Freshwater Molluscs of Britain and Ireland. Harley Books, Colchester. Killeen, I. J. 1999. The freshwater snail <i>Anisus vorticulus</i>:1998 monitoring survey of ditches in East Anglia. English Nature Research Reports 311.English Nature, Peterborough. Watson, A. 2002. The ecology of four scarce wetland molluscs. Unpublished PhD thesis submitted to School of Biosciences, Cardiff University. Wells, S.M. & Chatfield, J. E. 1992. Threatened non-Marine mollusc of Europe. Nature & environment , no. 64. Council of Europe Press, Strasbourg. Willing, M. J. 2005. Monitoring populations of the little Whirlpool Ram`s-horn snail <i>Anisus vorticulus</i> at Pulborough Brooks & Amberley Wildbrooks, June – September 2004. Unpublished report for the RSPB and Environment Agency. Willing, M. J. & Killeen, I. J. 1999. <i>Anisus vorticulus</i> – a rare and threatened water snail. British Wildlife: August 1999.</p> |
| <p>Quality</p> | <p>Good survey records exist for most of the key sites (until late 1990s). Auto-ecological information extended following study of</p> |

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|---------------------------------|---------------|
| | Watson, 2002. |
| Criterion(existing bap species) | 1,3,4 |

9 Additional information for species listed under the Habitats Directive^{vi}

| Attribute | Value |
|-----------------------------------|--|
| Conclusions - overall assessment | (U1-) - Inadequate and deteriorating |
| Conclusions - range | (FV) - Favourable |
| Conclusions - population | (U1-) - Inadequate and deteriorating |
| Conclusions - habitat | (U1-) - Inadequate and deteriorating |
| Conclusions - future prospects | (U1) - Inadequate |
| Published sources and/or websites | <p>ABRAHAM, F., ALLEN, S., HODGE, P. and WILLING, M.J. 1998. A survey of the flora and selected invertebrate groups of the ditches of the Lower Arun Valley. Arun Valley Countryside Project, Bognor Regis: Arun District Council, (unpublished report)</p> <p>CURSON, S., FREED, T., GREENAWAY T., HODGE, P., RYLAND, K. & WILLING, M.J. 2003 Baseline Biological Survey of the Lower Ouse Valley (Tarring Neville, Southease & Offham Marshes). Sussex Record Centre Survey Unit. Woods Mill.</p> <p>DOLPHIN ECOLOGICAL SURVEYS et al. 2002. Baseline Biological Survey of the Lower Ouse Valley. Report to English Nature, Lewes.</p> <p>HICKLIN, A.J. 1986. An evaluation of the nature conservation status of the Lewes Brooks drainage system, East Sussex. Wye Nature Conservancy Council.</p> <p>HINGLEY, M.R. 1979. The colonisation of newly dredged drainage channels on the Pevensey level (East Sussex) with special reference to gastropods. London: Journal of Conchology. 30: 105 - 22.</p> <p>HMSO, 1995a. Biodiversity: The UK Steering Group Report - Volume II: Action Plans. HMSO, London.</p> <p>KERNEY, M. 1999. Atlas of the land and freshwater molluscs of Britain and Ireland. Harley Books.</p> <p>KILLEEN, I.J. 2005. A Survey to determine</p> |

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| | <p>the present status of <i>Anisus vorticulus</i> at sites in Suffolk and Norfolk. Report for Environment Agency.</p> <p>KILLEEN, I.J. & WILLING, M.J. 1997. Survey of Ditches in East Anglia and South East England for the Freshwater Snails <i>Segmentina nitida</i> and <i>Anisus vorticulus</i> English Nature Research Report 229.</p> <p>NIGGEBRUGGE, K., DURANCE, I., WATSON, A.M., LEUVEN, R.S.E.W. & ORMEROD, S.J. 2006. Dispersal and distribution in uncommon wetland gastropods: snail-trail or critical path? Unpublished.</p> <p>WATSON, A. 2002. The Ecology of Four Scarce Wetland Molluscs – University of Wales, Cardiff PhD study Environment Agency R&D Project W1-038PR.</p> <p>WATSON, A.M. & ORMEROD S.J. 2004a. The distribution of three uncommon freshwater gastropods in the drainage ditches of British grazing marshes.</p> <p>WATSON, A.M. & ORMEROD S.J. 2004b. The microdistribution of three uncommon freshwater gastropods in the drainage ditches of British grazing marshes.</p> <p>WILLING, M.J. & KILLEEN, I.J. 1998. The freshwater snail <i>Anisus vorticulus</i> in ditches in Suffolk, Norfolk and West Sussex. English Nature Research Reports, No. 287. Peterborough: English Nature.</p> <p>WILLING, M.J. & KILLEEN, I.J. 1999. <i>Anisus vorticulus</i> – a rare & threatened water snail. <i>British Wildlife</i>, 10:6, pp 412-418.</p> <p>WILLING, M.J. 1999. Monitoring populations of <i>Anisus vorticulus</i> the little whirlpool ramshorn snail in West Sussex, May - November 1998. English Nature Research Reports 310. Peterborough: English Nature.</p> <p>WILLING, M.J. 2000a. A baseline</p> |
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| | <p>molluscan survey of the RSPB Pulborough Brooks Reserve. Unpublished report for the Environment Agency, Worthing.</p> <p>WILLING, M.J. 2000b. A molluscan survey of: 1. ditches adjacent to the middle River Arun & lower River Rother, West Sussex & 2. a monitoring ditch on Amberley Wildbrooks. Unpublished report for the Environment Agency, Worthing.</p> <p>WILLING, M.J. 2001. Molluscan monitoring of two ditches on Amberley Wildbrooks, 2000. Unpublished report for the Environment Agency, Worthing.</p> <p>WILLING, M.J. 2004. Monitoring populations of the little whirlpool ram's-horn snail <i>Anisus vorticulus</i> (the little whirlpool ramshorn snail) at Pulborough Brooks and Amberley Wildbrooks June – September 2004. Unpublished report to the RSPB & Environment Agency (Worthing).</p> <p>WILLING, M.J. 2005. Monitoring populations of <i>Anisus vorticulus</i> (the little whirlpool ramshorn snail) at Pulborough Brooks & Amberley Wildbrooks June – September 2004. An unpublished report to the RSPB and Environment Agency (Worthing).</p> <p>WILLING, M.J. 2006. Monitoring, survey and translocation of populations of the little whirlpool ram's-horn snail <i>Anisus vorticulus</i> at Pulborough Brooks, Amberley Wildbrooks and North Stoke June – November 2005. An unpublished report to the RSPB and Environment Agency (Worthing).</p> <p>WILLING, M.J. 2006. A survey for the Little Whirlepool Ram's-horn snail <i>Anisus vortiuulus</i> and other freshwater Mollusca at North Stoke: June 2006 Unpublished report to DEFRA Guildfords and North Stoke Farm.</p> <p>WILLING. M.J. 2007. The Survey & Monitoring of populations of the Little Whirlepool Ram's-horn Snail on (a) the SWT Pevensey Levels Reserve and (b) Amberley</p> |
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| | <p>Wildbrooks and Pulborough Brooks: May – June 2006. Sussex Biodiversity Records Centre Survey Unit. Woodsmill, Henfield.</p> <p>WILLING, M.J. 2007. Monitoring populations of the Little Whirlpool Ram’s-horn Snail on Pevensey Levels April 2006. Environment Agency, Worthing.</p> <p>Map Data Sources</p> <p>Conchological Society - Mollusc (non-marine) data for Great Britain and Ireland; Natural England - Invertebrate Site Register (via the NBN Gateway).</p> <p>Data from KILLEEN, I.J. 2005. A survey to determine the present status of <i>Anisus vorticulus</i> (Gastropoda: Planorbidae) at sites in Suffolk and Norfolk. Unpublished report for the Environment Agency.</p> <p>KILLEEN I.J. 1999. EN Species Recovery Programme: The freshwater snail <i>Anisus vorticulus</i>: 1998 monitoring survey of ditches in East Anglia. English Nature Research Reports No.311. Peterborough: English Nature.</p> <p>KILLEEN, I.J. & WILLING, M.J. 1997. Survey of Ditches in East Anglia and South East England for the Freshwater Snails <i>Segmentina nitida</i> and <i>Anisus vorticulus</i> English Nature Research Report 229.</p> <p>Natural England (A. Watson, pers. comm) compiled in 2000.</p> |
| surface area of range in km2 | 967 |
| surface area of range in km2 EU | 967 |
| Date of range determination | 1998-2005 |
| Quality of data concerning range | Moderate |
| Range trend | Stable (=) |
| Range trend magnitude (%) | Not applicable |
| | |
| Range trend period | 1994-2005 |
| Range trend reasons 0 - Unknown | False |
| Range trend reasons 1 - Improved knowledge/more accurate data | False |
| Range trend reasons 2 - Climate change | False |

| | |
|---|----------------------------------|
| Range trend reasons 3 - Direct human influence | False |
| Range trend reasons 4 - Indirect anthropo or zoogenic influence | False |
| Range trend reasons 5 - Natural processes | False |
| Range trend reasons 6 - Other (specify) | False |
| Reasons for reported trend in range specify | Not applicable |
| Population_min | 7 |
| Population_min EU | 7 |
| Population_max | 7 |
| Population_max EU | 7 |
| Population units | Other |
| Population units other specified | Occupied 10-km squares |
| Population date | 2002-2006 |
| Population method | 3 - From comprehensive inventory |
| Population quality | Good |
| Population trend | Decreasing (-) |
| Population magnitude (%) | Unknown |
| | |
| Population period | 2002-2005 |
| Pop trend reasons 0 - Unknown | False |
| Pop trend reasons 1 - Improved knowledge/more accurate data | False |
| Pop trend reasons 2 - Climate change | False |
| Pop trend reasons 3 - Direct human influence | True |
| Pop trend reasons 4 - Indirect anthropo or zoogenic influence | False |
| Pop trend reasons 5 - Natural processes | True |
| Pop trend reasons 6 - Other (specify) | False |
| | |
| Surface area of the habitat in km2 | Unknown |
| | |
| Date of area estimation | 05/2007 |
| | |
| Quality of data on habitat area | Poor |
| Habitat trend | Decreasing (-) |
| Habitat trend period | 2002-2005 |
| Hab trend reasons 0 Unknown | False |
| Hab trend reasons 1 Improved knowledge | False |
| Hab trend reasons 2 Climate change | False |
| Hab trend reasons 3 Direct human influence | True |
| Hab trend reasons 4 Indirect anthropo or zoogenic influence | False |
| Hab trend reasons 5 Natural processes | False |
| Hab trend reasons 6 Other (specify) | False |
| | |
| Justification of % thresholds for trends | Not applicable |
| | |

| | |
|---------------------------------|---|
| Future prospects | Poor prospects_Species likely to struggle unless conditions change |
| Favourable reference range | 967 |
| Favourable reference range EU | 967 |
| Favourable reference population | 9 |
| Habitat name | <p><i>Anisus vorticulus</i> has only been found in the UK within grazing marshes which are drained by ditches, rhymes, dykes etc. It occurs in the unpolluted, calcareous waters of well-vegetated marsh drains and is occasionally found with other uncommon or vulnerable molluscs such as <i>Valvata macrostoma</i> and <i>Pisidium pseudosphaerium</i> and often found floating on the surface amongst duckweed (<i>Lemna</i> spp.). It also shows preference for ditches or channels of >3m in width and >1m in depth with a diverse flora but with a moderate emergent vegetative cover, and often occurs in ditches in wet fields that flood in winter, as this may be important in enabling young snails to colonise new ditches.</p> |
| Other relevent information | Population units (not on EU standard list): Occupied 10-km squares See audit trail documents for further information. |

10 Species designations^{vii}

| Abbreviation | Reporting Category | Designation | Designation description | Year | Source | Comment |
|--------------|---|--------------------------------|---|------|---|---|
| HabReg:Sch2 | The Conservation of Habitats and Species Regulations 2010 | Schedule 2 | Schedule 2: European protected species of animals. | 1994 | The Conservation of Habitats and Species Regulations 2010 | |
| HabDir:A2* | Habitats Directive | Annex 2 - non-priority species | Animal and plant species of Community interest (i.e. endangered, vulnerable, rare or endemic in the European Community) whose conservation requires the designation of special areas of conservation. Note that the contents of this annex have been updated in April 2003 following the Treaty of Accession. | 2003 | Habitats Directive | Added in April 2003 following Treaty of Accession |
| HabDir:A4 | Habitats Directive | Annex 4 | Animal and plant species of Community interest (i.e. endangered, vulnerable, rare or endemic in the European Community) in need of strict protection. They are protected from killing, disturbance or the destruction of them or their habitat. Note that the contents of this annex have been updated in April 2003 following the Treaty of Accession. | 2003 | Habitats Directive | Added in April 2003 following Treaty of Accession |

| | | | | | | |
|---------------------|--|-------------------|--|------|---|---|
| England NERC S.41 | Biodiversity Lists - England | England NERC S.41 | Species “of principal importance for the purpose of conserving biodiversity” covered under section 41 (England) of the NERC Act (2006) and therefore need to be taken into consideration by a public body when performing any of its functions with a view to conserving biodiversity. | 2008 | Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (section 41) and Wales (section 42) | Geographic constraint=Listing is for England only |
| BAP:2007 | Biodiversity Action Plan UK list of priority species | Priority Species | The UK List of Priority Species and Habitats contains 1150 species and 65 habitats that have been listed as priorities for conservation action under the UK Biodiversity Action Plan (UK BAP). | 2007 | UK list of Priority Habitats and Species | status on former BAP list: Species Action Plan |
| RedList_GB_Pre94:VU | Red Listing based on pre 1994 IUCN guidelines | Vulnerable | Taxa believed likely to move into the Endangered category in the near future if the causal factors continue operating. Superseded by new IUCN categories in 1994, but still applicable to lists that have not been reviewed since 1994. | 1991 | Red Data Book of Invertebrates | pre 1994 IUCN criteria |

UK BAP 2008 reporting^{viii}

(nb this only applies to species on the original 1997 UK BAP priority species list)

11 General status

| Country | Attribute | Value |
|---------|------------------------|---|
| England | | |
| | Date | 2008 |
| | Status unknown | No |
| | Value | 7 |
| | Units | Site(s) / population(s) |
| | Accuracy | Sample or full survey |
| | Adequate data | Yes |
| | Data on NBN | Unknown |
| | Refer to LBAP data | No |
| | Data source / comments | I.Killeen (2005) A Survey To Determine The Present Status of Anisus vorticulus at Sites in Suffolk and Norfolk (Report for Environment Agency). I.Killeen & M.Willing (1997) Survey of Ditches in East Anglia and South East England for the Freshwater Snails Segmentina nitida and Anisus vorticulus (English Nature Research Report 229). A.Watson (2002) The Ecology of Four Scarce Wetland Molluscs –University of Wales, Cardiff PhD study (Environment Agency R&D Project W1-038PR). Willing, M.J. (1999) Monitoring populations of Anisus vorticulus (the little whirlpool ramshorn snail) in West Sussex, May - November 1998. English Nature Research Reports 310. Peterborough: English Nature. Willing, M.J. (2000a). A baseline molluscan survey of the RSPB Pulborough Brooks Reserve. Unpublished report for the Environment Agency, Worthing. Willing, M.J. (2000b). A molluscan survey of: (1) ditches adjacent to the middle River Arun & lower River Rother, West Sussex & (2) a monitoring ditch on Amberley Wildbrooks. Unpublished report for the Environment Agency, Worthing. Willing, M.J. (2001). Molluscan monitoring of two ditches on Amberley Wildbrooks. Willing, M (2004) Monitoring populations of the little whirlpool ram's-horn snail Anisus vorticulus at Pulborough Brooks and Amberley Wildbrooks June –September 2004 |

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| | | (Report for RSPB & Environment Agency). Willing, M.J. (2006) Monitoring, survey and translocation of the Little Whirlpool Ram's-horn Snail <i>Anisus vorticulus</i> at Pulborough Brooks, Ambereley Wildbrooks and North Stoke: June – November 2005. (Report for RSPB & Environment Agency). Willing, M.J. (2006) Monitoring populations of the Little Whirlpool Ram's-horn Snail <i>Anisus vorticulus</i> on Pevensey Levels April 2006. (Unpublished report for Environment Agency). Willing, M.J. (2006) A survey for the Little Whirlpool Ram's-horn Snail <i>Anisus vorticulus</i> and other freshwater mollusca at North Stoke: June 2006 (unpublished report). |
| | Edits made by reporting group | |
| UK | | |
| | Date | 2008 |
| | Status unknown | No |
| | Value | 7 |
| | Units | Site(s) / population(s) |
| | Accuracy | Sample or full survey |
| | Adequate data | Yes |
| | Data on NBN | Unknown |
| | Refer to LBAP data | No |
| | Data source / comments | I.Killeen (2005) A Survey To Determine The Present Status of <i>Anisus vorticulus</i> at Sites in Suffolk and Norfolk (Report for Environment Agency). I.Killeen & M.Willing (1997) Survey of Ditches in East Anglia and South East England for the Freshwater Snails <i>Segmentina nitida</i> and <i>Anisus vorticulus</i> (English Nature Research Report 229). A.Watson (2002) The Ecology of Four Scarce Wetland Molluscs –University of Wales, Cardiff PhD study (Environment Agency R&D Project W1-038PR). Willing, M.J. (1999) Monitoring populations of <i>Anisus vorticulus</i> (the little whirlpool ramshorn snail) in West Sussex, May - November 1998. English Nature Research Reports 310. Peterborough: English Nature. Willing, M.J. (2000a). A baseline molluscan survey of the RSPB Pulborough Brooks Reserve. Unpublished report for the Environment Agency, Worthing. Willing, M.J. (2000b). A molluscan survey of: (1) ditches adjacent to the middle River Arun & lower River Rother, West Sussex & (2) a monitoring ditch on Amberley Wildbrooks. Unpublished report for the Environment Agency, Worthing. Willing, M.J. (2001). Molluscan monitoring of two ditches on Amberley Wildbrooks. Willing, M (2004) Monitoring populations of the little whirlpool ram's-horn |

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| | | snail <i>Anisus vorticulus</i> at Pulborough Brooks and Amberley Wildbrooks June –September 2004 (Report for RSPB & Environment Agency). Willing, M.J. (2006) Monitoring, survey and translocation of the Little Whirlpool Ram’s-horn Snail <i>Anisus vorticulus</i> at Pulborough Brooks, Ambereley Wildbrooks and North Stoke: June – November 2005. (Report for RSPB & Environment Agency). Willing, M.J. (2006) Monitoring populations of the Little Whirlpool Ram's-horn Snail <i>Anisus vorticulus</i> on Pevensey Levels April 2006. (Unpublished report for Environment Agency). Willing, M.J. (2006) A survey for the Little Whirlpool Ram's-horn Snail <i>Anisus vorticulus</i> and other freshwater mollusca at North Stoke: June 2006 (unpublished report). |
| | Edits made by reporting group | |

8 Threats

| Threat category 1 | Threat category 2 | England | NI | Scotland | Wales | Edits made by reporting group |
|--|------------------------------------|---------|----|----------|-------|-------------------------------|
| | | | | | | |
| Intrinsic Factors | Limited dispersal | Yes | No | No | No | |
| Pollution - freshwater | Agricultural (nutrient enrichment) | Yes | No | No | No | |
| Habitat loss / degradation - agriculture | Conversion to arable | Yes | No | No | No | |

| | | | | | | |
|---|--------------------------------|-----|----|----|----|--|
| Habitat loss / degradation - drainage/abstraction | Drainage (for agriculture) | Yes | No | No | No | |
| Habitat loss / degradation - management practice | Inappropriate ditch management | Yes | No | No | No | |

15 Constraints

| Rank | Constraint category 1 | Constraint category 2 | Constraint summary | England | NI | Scotland | Wales | Solution category | Solution summary |
|------|-----------------------|-----------------------|--------------------|---------|----|----------|-------|-------------------|------------------|
|------|-----------------------|-----------------------|--------------------|---------|----|----------|-------|-------------------|------------------|

| | | | | | | | | | |
|---|--------------------------------|---------------------------------|--|-----|----|----|----|------------|---|
| 1 | Species and habitat management | Habitat fragmentation increased | Loss of suitable habitat as a result of the previously mentioned threats can lead to the fragmentation of appropriate habitat for this snail. Once confined to isolated populations, the vulnerability of individual populations to further habitat degradation is high. Chances for expansion of range are also restricted. | Yes | No | No | No | Management | Sympathetic management of all ditches would ensure that fragmentation of the habitat is limited, as this leads to isolated populations unable to recolonise even when the habitat is restored. West Sussex study focussing on extending the range of the species on previously unpopulated ditches with aid determining recovery options. |
|---|--------------------------------|---------------------------------|--|-----|----|----|----|------------|---|

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|---|-------------|--|--|-----|----|----|----|--|--|
| 1 | Partnership | Land managers/owners - lack of involvement | Survival of robust populations of this snail are reliant on the support of landowners or land managers whether private individuals or non-statutory /statutory bodies. The habitat requirements are not necessarily coincident with those of other scarce or protected species. Nor with modern agricultural techniques. There is therefore a need to promote sensitive ditch management specific to this species. | Yes | No | No | No | Funding, resources and incentive schemes | Provision of information on the species and sympathetic ditch management techniques to owners and managers. Some progress is being made (especially in Sussex) to encourage arrangements to further more sympathetic ditch management. |
|---|-------------|--|--|-----|----|----|----|--|--|

| | | | | | | | | | |
|---|-------------------------------------|--|---|-----|----|----|----|--------------------------|--|
| 2 | Policy, legislation and designation | Insufficient protection through UK designated sites (SSSI, NNR, MNR) | The presence of this species in designated sites does not necessarily afford it protection. Sites are rarely designated for the presence of rare molluscs. The protection of other rare or protected species may conflict with the habitat needs of this snail. | Yes | No | No | No | Legislation and policies | Improved legislation and policies to protect rare species. Sympathetic management of designated sites to provide a range of habitats for a broader range of scarce and rare species present. Improved protection should occur once sites are designated under Annex II of the EU Habitats and Species Directive. |
|---|-------------------------------------|--|---|-----|----|----|----|--------------------------|--|

9 State of Knowledge

| State of knowledge category | Notes | Edits made by reporting group |
|--|--|-------------------------------|
| Knowledge sufficient to make some impact, but more research needed | New research currently underway at Cardiff University assessing the genetic variability between the distinct Anisus populations could provide significant autecological information regarding the species. On-going study focussing on dispersal and recolonisation ability of Anisus at selected ditches in West Sussex supporting previous information on snail as poor coloniser. | |

ENDNOTES

ⁱ An explanation of these criteria is included at Annex 3 of [UK Biodiversity Action Plan: Report on the Species and Habitat Review](#). BRIG (ed. Ant Maddock) 2007. This review was organised in two stages. Stage 1 looked at the scientific evidence for selecting the UK List of Priority Species and Habitats while stage 2 considered the conservation action needed for these species and habitats and provided signposts to the means of implementing action.

ⁱⁱ The information on evidence and the species distribution is as presented on the UK BAP website. Users can download a spreadsheet of the [Stage 1 species evidence](#) from the home page of the UK BAP website.

ⁱⁱⁱ Actions were assigned to each and every priority species by expert groups convened at Stage 2 of the Review process. These were subsequently categorised into “signpost categories”. This information is as shown on the UK BAP website See the link for [categorisation \(signposting\) of UK priority species](#).

^{iv} Where a species action is clearly linked to a BAP priority habitat, the name of the relevant habitat or habitats was identified by the stage 2 expert group.

^v This information has been derived from Stage 1 of the priority species review, and is presented in the “marine”, “terrestrial invertebrates” and “other terrestrial species” sheets within the spreadsheet of the [Stage 1 species evidence](#). The information presented here varies according to the taxonomic group. Please note that some of these data have been written for other Expert Group members and may not be of great value to a wider audience.

^{vi} This is only applicable to Species listed under the Annexes 2 4 and 5 of the Habitats Directive. The information presented here was collated by the UK Government in fulfilment of the requirement under Article 17 of the Habitats Directive. For further information see the [2nd UK Report](#) on the implementation of the Habitats Directive.

^{vii} Information on conservation designations has been extracted from JNCC’s collation of information on [species designations](#). The designations shown in version 2 of these pages are as at December 2010.

^{viii} As part of the 2008 UK BAP reporting round lead partners of national plans were asked to answer a number of specific questions. The data will be analysed and used for the UK and country level reports. All of the responses provided through BARS as part of the 2008 reporting exercise are available to [download](#). Note that in the December 2010 version of these pages (version 2) includes corrections to previously truncated text fields.