



Bedfordshire and Luton Species Action Plan: Depressed River Mussel

October 2008

Depressed River Mussel *Pseudanodonta complanata*. Photo by Tom Meier





Depressed River Mussel
Pseudanodonta complanata

National lead organisation(s):
Environment Agency

County lead organisation(s):
Environment Agency
Bedfordshire Rural Communities Charity

The depressed (or compressed) river mussel (DRM) lives in the sediments of hard-water rivers typically at the margins, usually buried completely into the mud, using its foot out to anchor itself into the substrate. The species is not usually found in silt, but occasionally occurs in sand, gravel and cobble substrates (Killeen et al 2004, Willing 2008). It is thought to prefer rivers with high flow and algal content tending to be found in the lower reaches of river systems. It reproduces between April and June and the larvae parasitise fish, probably perch and sticklebacks.

Current status

National status

The depressed (compressed) river mussel *Pseudanodonta complanata* inhabits medium to slow flowing hard water, lowland rivers and occasionally canals. It is locally distributed throughout England (Kerney 1999) where it has been recorded from at least 65 ten kilometre squares, whilst in Wales it is only known from a short stretch of the lower River Wye. In Europe the species is widespread, but local, occurring in the lowlands between south Scandinavia and the Alps. Throughout this range it is considered to be local (Kerney 1999) or regionally rare (McIvor & Aldridge 2007). Wells and Chatfield (1992) catalogued possible problems for the species in Austria, Germany, Poland, Sweden and Switzerland.

The DRM is a local species in Britain, often with low population numbers in comparison to other mussels. This mussel is considered to be seriously threatened throughout some of its European range (it is not in the UK!). In the UK it has been recorded from about 73 ten km squares since 1950 in England and Wales (NBN Gateway, 2 April 2008), but it may have disappeared from 30% of its historical sites (Killeen, et al, 2004) although at some of these the mussel was probably misidentified (Müller 1999, Willing personal communication). In the UK it is found from Somerset, through the Welsh borders to south Yorkshire and east as far as the coast. However, the species is easily overlooked even when searched for, and may be more common than thought. Recent work (Willing, unpublished & 2008) on the rivers Arun, West Sussex and Wye (Monmouthshire, Gloucestershire and Herefordshire) show that, in some rivers at least, it is much more widespread than previously records indicate.





Local status

There are nine sites recorded for DRM in Bedfordshire and Luton (Figure 1). Although the exact location of some of the sites is not clear from the data available, most appear to be from the River Great Ouse. The most recent record for the species in Bedfordshire is from 1999. This is likely to indicate a lack of recording of the species since that time, rather than the loss of the species from the county, as there are few records for anywhere in the country after 1999 (NBN Gateway, 2 April 2008).

Current factors affecting the Depressed River Mussel

The threats to this species are not fully known, but are likely to include:

- water pollution (although the species can survive in moderately polluted waters)
- physical disturbance of river banks and channels *especially by dredging*
- drought
- low populations of host fish species (perch and stickleback)
- saline intrusion in the lower reaches of some rivers.

There is a suggestion that the frequency and techniques of river/canal dredging need to be carefully considered in order to balance the benefit to the species with the maintenance of water flow against the destruction of populations by their removal. The frequency of dredging should be timed to allow the species to reach maturity (Willing 1997).

Current action

Legal

Not legally protected in the UK. In Germany the mussel is considered to be 'threatened by extinction' and has a high degree of legal protection (Der Bundesminister für Umwelt, Naturschutz und Reaktorsicherheit 1996), although in the Netherlands, Gittenberger *et al* (1998) show a 50% increase in the number of known populations between 1970 – 1997 compared to pre-1970.

On the IUCN Red List of Threatened Species (IUCN 2008) the species is placed at 'Lower Risk – Near Threatened'.

National action

P. complanata was made a UK Biodiversity Steering Group (BAP) Priority Species in 1995 (Anon 1995) and an action plan for the mussel published in 1997 (Willing 1997).

Local action

There has been no recent work on DRM in Bedfordshire and Luton. The most recent records from the county are from 1999 and are included in a dissertation on the management of waterways for this species (McIvor, 1999).

Action plan objectives and targets





Objective

Maintain and expand the range, and population of Depressed River Mussel in Bedfordshire.

Targets

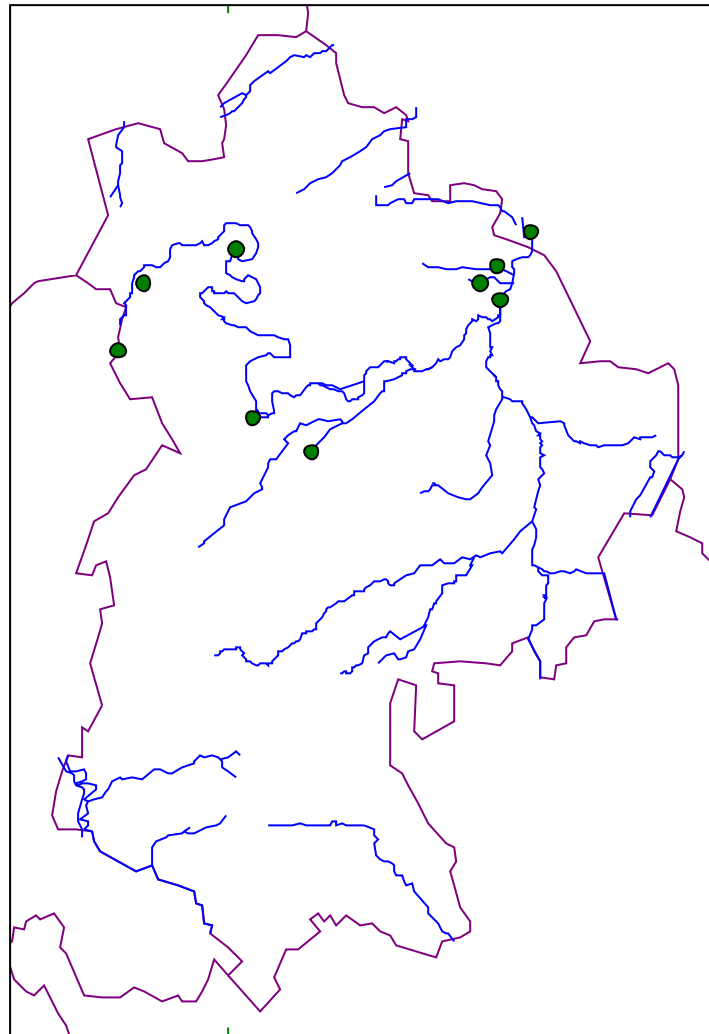
- A. Assess the current distribution and status of Depressed River Mussel in Bedfordshire and Luton by 2015.
- B. Ensure appropriate habitat management occurs at all 9 known Bedfordshire sites by 2015.

Fig. 1 Pre-1999 locations of depressed river mussel (*Pseudanodonta complanata*) records in Bedfordshire





Pseudanodonta complanata



Reproduced from Lawrence, Unpublished



Proposed action

Abbreviations

BRCC

Bedfordshire Rural Communities Charity

LBAP

Beds & Luton BAP Coordinator

Action	Implemented by
Policy and legislation	
1. By 2015 ensure all flood defence and navigational maintenance activities take account of the depressed river mussel	
Site safeguard and management	
2. Avoid or minimise clearance actions in marginal zones where DRM are most frequent. If dredging or weed cutting MUST take place examine dredgings and return mussels to the river or water course	
Advisory	
3. Prepare advice on river management for this species by 2015.	
4. Ensure all agencies (including but not limited to Environment Agency), landowners and managers who are likely to undertake works that may affect DRM populations are aware of the likely impacts of their proposed activities and mitigate accordingly by 2015	
Future research and monitoring	
5. Re-survey all 9 known Bedfordshire sites for this species by 2010	
6. Survey all main rivers in Bedfordshire and Luton for this species by 2015	
Communication and publicity	
7. Work with experts to formulate guide / information sheets to inform on the importance of the mussel as a large organism that is important in own right but also as biological water filter (together with other unioid mussel community of which DRM is a part)	





Monitoring the Action Plan

This action plan will be reviewed every five years.

Complementary plans

There is a National plan for Depressed River Mussel by the UK Biodiversity Steering Group and an updated version (in 1997) for the Environment Agency by Martin Willing.

No adjacent counties appear to have a Depressed River Mussel Species Action Plan.

This action plan should be read alongside the habitat action plan for Rivers and Streams in Bedfordshire and Luton.

Acknowledgements

This species action plan has been written by Richard Lawrence (BRCC) with assistance from Martin Willing (Conservation Officer, Conchological Society of Great Britain & Ireland), Glen Meadows (Environment Agency and National DRM BAP Coordinator) and Heather Webb (Biodiversity Partnership Coordinator for Bedfordshire and Luton).

The distribution map was produced using DMAP.

References and further reading

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