

Creating ponds for Lesser Water-plantain



A 50-YEAR PROJECT TO CREATE A NETWORK OF CLEAN WATER PONDS FOR FRESHWATER WILDLIFE

1. Lesser Water-plantain

Lesser Water-plantain (*Baldellia ranunculoides*) is a beautiful plant. It can vary considerably in size, from diminutive plants with leaves only 2-3 cm long and a single flower to tall, elegant plants with leaves to 30 cm long bearing whorls of white to pale pink flowers. Small plants can be easy to overlook when not flowering both because its leaves resemble those of many other wetland plants and because it frequently grows within a mixed community of other wetland plants. Thankfully, once spotted, it is easy (and enjoyable!) to confirm in the field, because when bruised, its leaves smell of coriander.

Lesser Water-plantain is undergoing a global decline, mainly due to habitat loss and degradation; including in the UK where it was formerly scattered throughout the country but now occurs mostly in coastal regions and in the East Anglian fens. Lesser Water-plantain is still relatively widespread in Wales and these Welsh populations are becoming of global importance as it continues to decline elsewhere. Lesser Water-plantain is classed as Near Threatened both in the UK and at a global level.

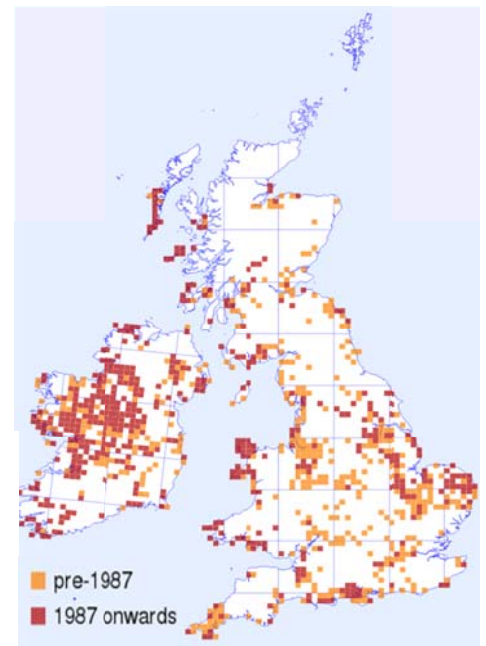


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Lesser Water-plantain in flower

Key messages

- Locate ponds adjacent to existing or historical sites
- Create shallow ponds with gently-sloping margins, and a wide drawdown zone
- Needs fluctuating water levels which will help to reduce the cover of terrestrial and aquatic plants
- Maintain open habitats by grazing with livestock
- Make a complex of pools
- Remove invasive species as soon as they occur. Once established they are very difficult to remove effectively



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Distribution of Lesser Water-plantain in the UK

2. Habitat requirements

Lesser Water-plantain is typically associated with moderately calcareous or mildly brackish wetlands, but will occasionally grow in more acidic habitats where nutrients are low. It grows in a wide range of habitats including temporary ponds, seasonally inundated hollows in moorland and unimproved pastures, and at the edge of ponds lakes and ditches. It can grow on a range of substrates, particularly clays, fine sands and fen peat.

Key habitat requirements are:

- Bare substrate or mud created by seasonal fluctuation in water levels, ideally combined with poaching by the hooves of livestock.
- Low natural nutrient levels, which makes it more difficult for aggressive species such as grasses to out-compete Lesser Water-plantain.
- Open habitats, as this species is intolerant of shading from trees and scrub.

The decline of pastoral economies and conversion of common land to more intensive land use has been a large contributor to the decline of Lesser Water-plantain. Remaining strongholds include areas such as the Pembrokeshire coast and Anglesey, which have a long history of grazing. Maintenance of these landscape types is essential for the continued survival of this plant.

3. Pond designs for Lesser Water-plantain

New ponds can help to support existing Lesser Water-plantain populations and, because its seeds are long-lived, can help to restore habitats where this plant has been 'lost'.

Ponds do not necessarily need to conform to the traditional concept of 'a pond': they could simply be an area of lower ground where water is held over the winter and spring months - long enough for seeds to germinate and grow into plants that can flower and set new seed.

Locating ponds

Create ponds where management will be suitable in the long-term. Grazing pressure needs to be sufficiently high to poach wet hollows and the margins of ponds, creating bare ground. Locate pond complexes in frequently used areas such as alongside trackways, footpaths, gateways and pinch points through field boundaries such as hedges or banks.

Create more than one pond wherever possible. A complex of small shallow ponds will be poached more than a single large pond. Creating a row of shallow depressions alongside a cattle drove route will often mean that these will be kept open by cattle and provide perfect habitat for Lesser Water-plantain. Look at existing ponds or wet hollows on the site and create more nearby.

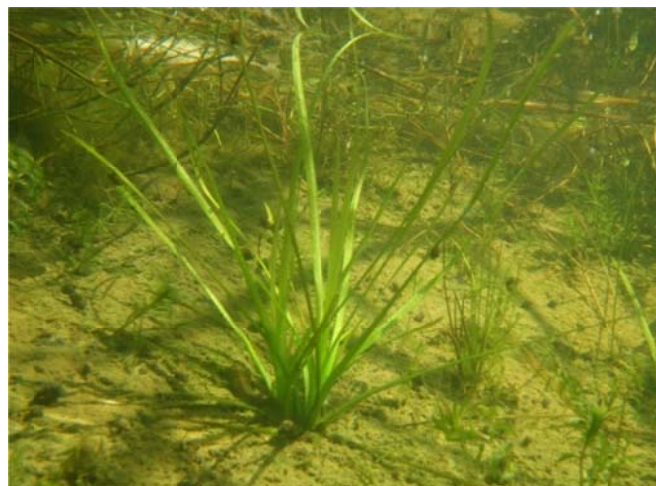
Create ponds close to existing populations, at least within the same grazing unit because it is most likely that seeds are transported to form new populations on the feet of cattle and so movement of cattle between ponds may be fundamental to the establishment of new populations.

Create ponds at historical sites - as long as suitable management can be re-instated for the long-term. If a Lesser Water-plantain seed bank is still present this may help re-create a population which had been lost.

Create clean water ponds. Lesser Water-plantain is found where there is good water quality so make sure you create ponds where they will be protected from pollution from nutrients or pesticides. Floodwater from streams and rivers may carry nutrient pollution, but seasonal drying – which reduces the accumulation of some nutrients - can help maintain suitable conditions for this species.

Most substrates may be suitable, but clays and fine sands are likely to be best for Lesser Water-plantain. Ponds can fill from surface water wherever there is an impermeable layer to hold water for part of the year, or from groundwater.

Add ponds to existing sites to make a complex of ponds. Single ponds will support Lesser Water-plantain but by increasing the number of ponds (and seasonally wet habitat) the population has the flexibility to move between ponds as conditions change and is more likely to be sustainable in the long term.



Some of the varied forms of Lesser Water-plantain: young submerged rosettes (top left), older submerged rosette (top right), typical emergent plant (top middle), and tall deeply submerged plants with floating flowers (bottom) (Photo credits: Richard Lansdown)



Lesser Water-plantain has already colonised the margin of this new permanent pond on Dowrog Common (top) in Pembrokeshire and this shallow scrape at Cors Erddreiniog on Anglesey (bottom), only a few years after creation. The plant already occurred at these sites but these are new populations which may have come by natural dispersal or because seeds were in the seed bank and pond creation provided the right condition for germination.



Pond shape, depth and size

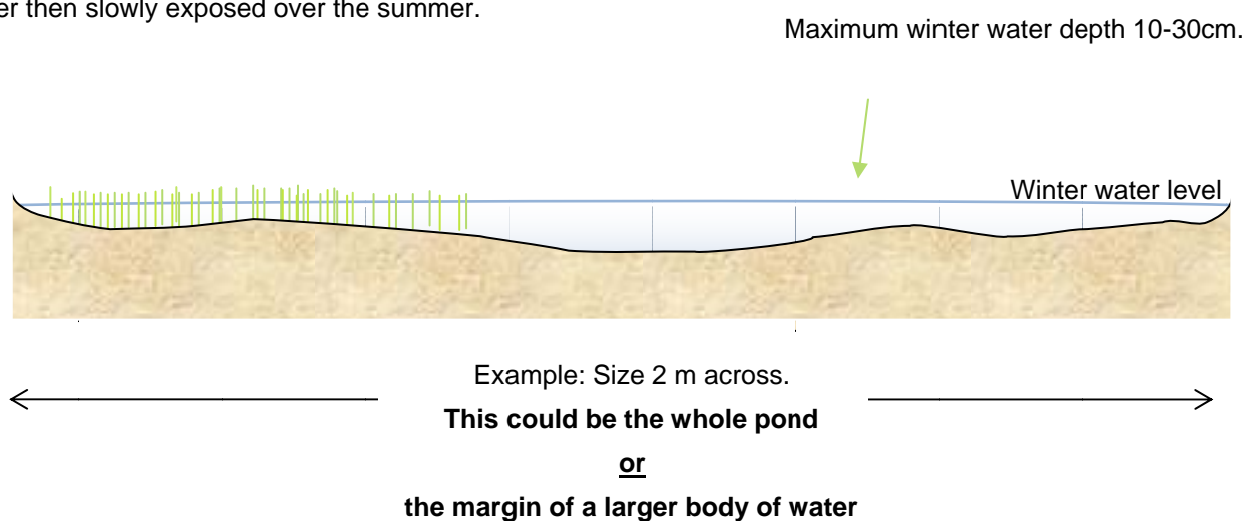
Ponds for Lesser Water-plantain can be any size, what really matters is the creation of a wide drawdown zone, where seasonal fluctuation in water levels will help maintain bare ground for the species to germinate and thrive.

As part of a larger complex of ponds, create small shallow temporary pools, even as small as 5 m squared. If creating ponds in one area is particularly successful, create more pools there in the future so that new pioneer habitat is available for Lesser Water-plantain to colonise.

Look at the other ponds and wet habitats that support this species in your area and try to re-create similar characteristics. Getting advice on your pond scheme from local or national experts at an early stage is always a good idea.

Figure 1: Designing the drawdown zone

The drawdown zone is the most important part of the pond for Lesser Water-plantain. It should be covered with water in winter then slowly exposed over the summer.



4. Pond colonisation

Don't plant up ponds which have been created for Lesser Water-plantain to minimise the risk of introducing invasive plants, like New Zealand Pimgyweed (*Crassula helmsii*). It is important to monitor which plants colonise the newly created ponds so that invasive plants can be removed before they become a problem.

Lesser Water-plantain can colonise new ponds very quickly. In the Anglesey Fens and at Dowrog Common in Pembrokeshire, for example, it colonised new ponds only a few years after creation.

The early, often bare-looking, stages in a pond's development are ideal for Lesser Water-plantain, but it will be out-competed when other, more dominant, plants begin to colonise, unless there is further disturbance and new bare ground can be created or maintained, e.g. by livestock poaching.

Useful contacts



Freshwater Habitats Trust: **an evidence-based conservation organisation working to protect and enhance the diversity of freshwater landscapes.**

For more information and contact details go to www.freshwaterhabitats.org.uk



Pondnet: **a volunteer network to monitor uncommon plant and animal species.**

For more information and contact details go to www.freshwaterhabitats.org.uk/projects/pondnet/



The Botanic Society of Britain and Ireland: **works to advance the study and enjoyment of wild plants and support their conservation in Britain and Ireland.**

For more information and contact details go to www.BSBI.org.uk

Further reading

Stewart A., Pearman DA. and Preston CD. (1994) Scarce plants in Britain. JNCC, Peterborough.

This factsheet was written with advice from Richard Lansdown, an independent specialist in the identification and conservation of wetland plants.

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For further information about the Million Ponds Project and to consult other factsheets in the Pond Creation Toolkit, please visit

www.freshwaterhabitats.org.uk/projects/million-ponds

or email enquiries to info@freshwaterhabitats.org.uk

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