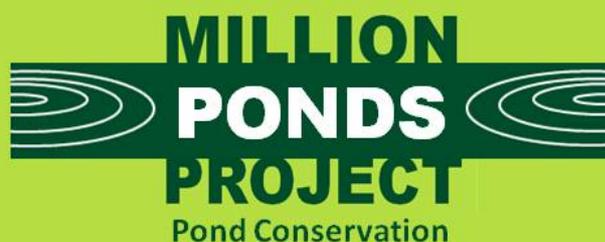


Creating habitat for rare plants in Northwest Pembrokeshire Commons SAC



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

Background

- The loss of heathland habitat and seasonal pools across the UK, in tandem with reduced grazing levels, has caused the decline of a number of rare plants associated with heathland ponds, pools and wet trackways.
- Three such species are three-lobed water-crowfoot (*Ranunculus tripartitus*), pillwort (*Pilularia globulifera*) and yellow centaury (*Cicendia filiformis*). The St. David's Commons Special Area of Conservation (SAC) (Fig. 1), which is a Flagship Pond site and part of the Pembrokeshire Important Areas for Ponds (see www.pondconservation.org.uk/pond_hap), provides one of the last UK strongholds for these heathland plants.
- The aim of the various pond creation schemes summarised here was primarily to increase the area of suitable habitat for these threatened species, as well as improving the connectivity of the freshwater landscape.
- This long-term programme of pond creation in and around the SAC benefits biodiversity by providing a range of pond habitats that are at different stages of maturity. Recently four new ponds were created over a 2-year period with funding from Biffa Award via the Million Ponds Project. More new clean water ponds are being planned for 2013 as part of a Welsh Government grant that will further contribute to landscape-scale freshwater conservation.
- The pond creation programme has involved a range of funding streams and collaborations between organisations including Countryside Council for Wales (CCW), Environment Agency, National Trust, Wildlife Trust of South & West Wales and Pond Conservation.

Key Points

This factsheet demonstrates how:

- pond creation can be targeted to create new habitat for rare and threatened species
- with careful planning, new ponds can provide considerable biodiversity benefits on designated land and on common land with high botanical interest
- a landscape scale, rolling programme of pond creation over many years can be used to maximise biodiversity benefits



Three-lobed water-crowfoot (*Ranunculus tripartitus*) – a species which is typically found in shallow temporary ponds and pools which dry up annually on extensively managed grassland and heathland.

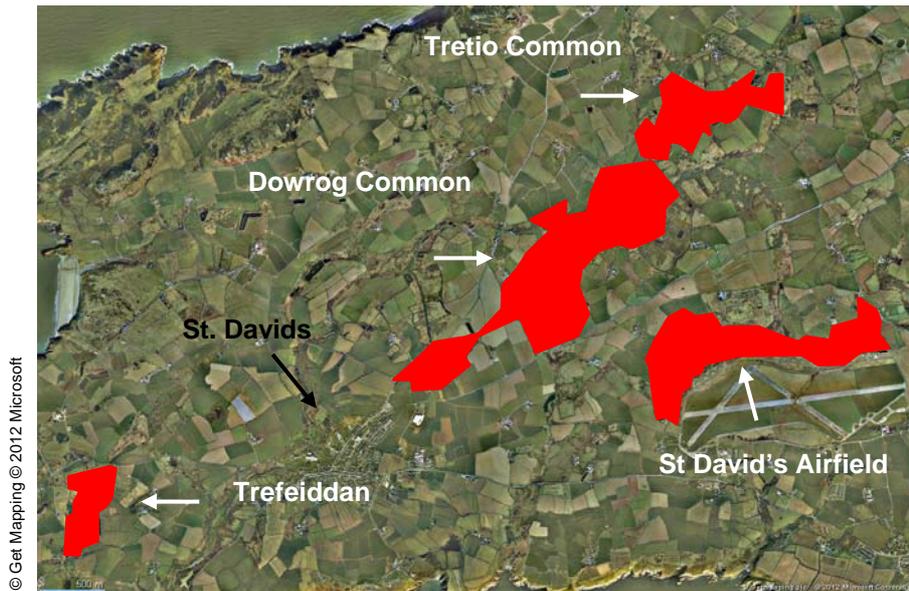


Figure 1. Satellite image of St. David's peninsula in Pembrokeshire highlighting the Northwest Pembrokeshire Commons SAC which includes Tretio Common, Dowrog Common, Trefeiddan and St David's Airfield.

Pre-site checks

Some key pre-site checks were carried out prior to pond creation at the various sites:

- **Geology and substrate** – The commons in this area lie over slowly permeable organic soils with clay present, a substrate which generally holds water, as shown by the range of existing waterbodies at these sites. The underlying substrate at the actual pond locations were checked before the excavations took place to make sure the ponds would retain water for suitable length of time.
- **Existing conservation value** – Because the commons already support rare and declining plant species it was extremely important not to cause damage to existing habitats and species of conservation value. Where new ponds were planned an assessment of the botanical interest was carried out by the CCW officers and other specialists as needed.
- **Future management** – Ensuring extensive livestock grazing is maintained in the long-term is key for the conservation of the target plant species because (i) livestock facilitates the colonisation of new ponds by moving seeds and spores of plants between waterbodies on their hooves, (ii) grazing helps prevent encroachment of scrub and keeps the edges of ponds open, preventing more dominant plant species from taking over thus maintaining plant diversity.
- **Permissions:**
 - Planning permission was not required because the ponds provide a source of water for livestock.
 - Where spoil needed to be removed from the site (see below), a waste exemption licence was obtained from the Environment Agency.
 - Consent to create ponds on designated sites was obtained from CCW.
 - Permission to carry out the work was also obtained from landowners, and the local grazing association was consulted and involved throughout the process.

Meeting the Million Ponds Project criteria

- **Clean water** – New ponds were always located in areas of semi-natural heathland that are grazed by low numbers of cattle, sheep and ponies (Fig. 2.).
- **Nothing added** – All new ponds were left to colonise naturally. This was helped by the grazing livestock on the commons which help to disperse wildlife, particularly plants, between ponds.
- **Free from disturbance** – the St David's commons are only lightly used by the public and so new ponds tend to be protected from excessive use by dogs and from illegal fish introductions.



Figure 2. Ponies grazing near a pond on Dowrog Common.

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Design and Construction

Advice for designing clean ponds on heathland, and more specifically for three-lobed water-crowfoot, yellow centaury and pillwort can be found in the Pond Creation Toolkit habitats factsheets and species dossiers, respectively (see www.pondconservation.org.uk/millionponds/pondcreationtoolkit). Generally:

- Ponds created by the various schemes included a range of surface areas and depths to maximise benefits to freshwater wildlife at the landscape scale.
- Key features to provide a suitable habitat for the target plant species included extensive shallows with microtopography, and a wide drawdown zone. This is the area between the maximum and minimum winter water level (Fig. 3). Many ponds were designed to dry out at least annually.
- In order to minimise damage to surrounding areas smaller machinery was used where possible.
- In some cases spoil was removed off site so as not to disturb the ecological value of the surrounding heathland vegetation. Disposal included spreading on nearby pasture using a muck spreader. With permission from CCW, spoil was used to infill a pond on nearby National Trust property that had become infested with the invasive plant New Zealand pigmyweed (*Crassula helmsii*).
- Spoil kept on site was disposed of very carefully and where possible used to make other wildlife structures such as insect banks.

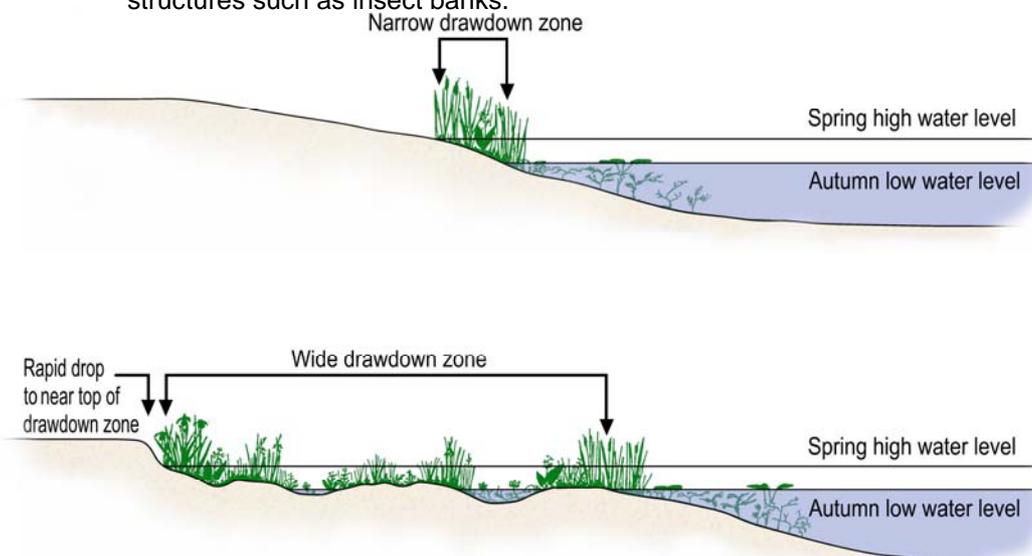


Figure 3. Diagram illustrating the drawdown zone of a pond. Top: a steep bank provides a very short drawdown zone compared to a gently sloping bank. Broadening the drawdown can considerably improve a pond's wildlife value and is essential for the colonisation of some species.

Cost and funding

- The cost per pond ranged from a few hundred to a few thousand pounds – this varied in relation to the waterbody surface area and location, because of higher costs associated with off site spoil disposal and excavating ponds in sensitive habitats.
- Excavation and spoil removal costs were covered by a number of sources, depending on the scheme, including funds from Welsh Government through CCW and the Environment Agency, the National Trust and from Biffa Award through the Million Ponds Project's Pond Digging Fund.



Figure 4. Left: Shallow ponds with a large drawdown zone created by CCW for pillwort. Right: A larger pond designed to have different depths and microtopography that will provide a range of conditions which different species can take advantage of.

Problems and solutions

As is usual with work on such high quality sites, at time new pond schemes had to be abandoned or modified according to the results of pre-site checks. For example, in one case the proposed area for pond creation turned out to have high botanical interest. In another case, the planned ponds became too expensive because the spoil arising from pond excavations had to be removed from the site. This highlights the importance of good forward planning, and of carrying out ecological assessments at the right time of year to ensure high quality habitat is identified and avoided.

Outcome and monitoring

- Overall this project has helped to improve the freshwater landscape of the commons by providing new habitat for rare and threatened plant species and freshwater wildlife more widely at key sites in Wales.
- The St David's Common SAC is being monitored by CCW and many of the new ponds created over the years have already been colonised with the target plant species.
- Future pond creation schemes are already planned which will continue to enhance the freshwater landscape of the area and support the rare heathland species which are special to the region.

For further information about the Million Ponds Project and to consult other factsheets in the Pond Creation Toolkit, please visit www.pondconservation.org.uk/millionponds or email enquiries to info@pondconservation.org.uk

