SOUTH EAST DEVON
HABITAT REGULATIONS
PARTNERSHIP

South East Devon Habitat Regulations Executive Committee

Vegetation Survey & Assessment –
Petalwort monitoring at Dawlish Warren 2023

January 2024

East Devon
Exeter City Council
Teignbridge DISTRICT COUNCIL South Devon

Legal comment/advice:

There are no substantive legal issues to be added to this report.

Finance comment/advice:

No direct financial implication arise from the report.

Public Document:	Yes
Exemption:	None
Review date for release	None

Recommendations

It is proposed that the Executive Committee:

1. Notes the vegetation survey and assessment report and the recommendations set out therein.
2. Receives an update from Teignbridge District Council at the next meeting regarding the status of the proposed Petalwort translocation scheme.
3. Subject to (2) above, considers funding the next survey on the conservation assessment of Petalwort in 2026.

Equalities impact: Low

Risk: High.

The attached report, included here as Appendix A, suggests that without management intervention there is a high risk that Petalwort may disappear from Dawlish Warren entirely.

1. Summary

1.1 Petalwort is a small, pale green plant which is one of the special interest features for which Dawlish Warren Special Area of Conservation (SAC) is designated. It is nationally scarce in the UK, being widely but sparsely distributed. Dawlish Warren is one of seven sites in England where the plant is recorded.

1.2 Petalwort was originally identified at Dawlish Warren in 1997 by Dr David Holyoak in two general areas of Dawlish Warren, one population close to the Visitor Centre and the second broadly spread across the Greenland Lake grassland. Subsequent surveys took place in 1999, 2001, 2003, 2012 and 2019.

1.3 Following the Beach Management Scheme, initiated by the Environment Agency in 2017, it is likely that a dynamic dune system will redevelop in parts of the site. If the dunes erode as predicted by the Environment Agency, the second area may become inundated with seawater, destroying the existing population and decreasing the chance of natural regeneration through spore dispersal.

1.4 Teignbridge District Council (TDC) Green Spaces Rangers at the Warren have already undertaken some experimental translocations of Petalwort and habitat creation to areas behind the newly constructed wall near the Visitor Centre (most likely to be protected from any inundation by the sea), under licence from Natural England.

1.5 The 2012 survey of Petalwort at the Warren developed a baseline dataset to enable identification of population trends and the overall condition of the plant across the site. This survey recorded two areas where populations of the plant could be found, referred to as the Greenland Lake Slack (a dune slack is a low-lying area which is seasonally flooded and has low nutrient levels) and the area to the west of the visitor centre.

1.6 Monitoring of the success/failure of these translocations and the status of the plant onsite was approved by HREC in June 2016. Subsequent delays related to consent for Petalwort habitat creation meant that the first study funded through the mitigation Strategy took place in 2019.

1.7 The 2019 study found that populations of Petalwort were found in Greenland Lake Slack in seven hollows, with a total of 1301 thalli (the main body of the plant) counted. Both sexes were recorded in three hollows and female plants only in another two. The total population of Petalwort in Greenland Lake Slack in 2019 was estimated to be 1300-1700 thalli.

1.8 In comparison with earlier studies, the number of thalli recorded fell between 2003 and 2012 and remained stable to 2019. Their distribution remained fairly consistent, with much local variation. Shallower hollows were considered less suitable as they are more likely to be dominated by grass and sedges.

1.9 Unfortunately, despite intensive searches, no thalli were found in either of the slacks where plants had been introduced to the west of the visitor centre or in the Visitor Centre Slack. This suggested that transplanting was unsuccessful and that the Visitor Centre Slack population (i.e., the population deemed “safe” from inundation by salt water in the future) was now extinct.

1.10 The 2019 report warned that the failure of attempts to establish Petalwort in areas to the west of the Visitor Centre means that if the Greenland Lake Slack population continues to decline, there is no reliable way of ensuring the survival of the plant at Dawlish Warren.

1.11 The report concluded that the prognosis for Petalwort at Dawlish is very poor without an extensive and imaginative translocation programme. It was recommended this must include experimental translocation, combined with habitat management. Recognising that the entire population of Petalwort (and other species) is likely to be lost, the report went on to say that there should be no constraint on potential for experimental manipulation of populations within Greenland Lake Slack.

1.12 Understanding the impacts on the plant from increasing visitor pressure is a nuanced issue. On one hand, if not inundated by saltwater, predicted increases in visitor pressure on Greenland Lake Slack could actually benefit Petalwort by increasing pressure on other plants and thereby maintaining bare habitat. However, too much trampling on newly translocated turves may destroy the plant before it can establish a foothold.

1.13 A translocation project initiated by TDC Rangers to relocate turves of Petalwort to a “safe” area west of Greenland Lake was successful in attracting funding from a bid to Natural England in 2023. Unfortunately, the funding deadline expired before works could be initiated, due to delays in the consenting process at NE. The bid has therefore been resubmitted.

2. 2023 survey and assessment.

2.1 The botanist and vegetation ecologist Sharon Pilkington was awarded the contract to carry out the survey and report work.

2.2 Main objectives of the survey were:

- survey and map the current metapopulation of Petalwort at Dawlish Warren to update the baseline;
- undertake a condition assessment of the species and the habitat supporting it using the approach of Lansdown (2019) and cross-referencing the results of that assessment and others before it; and
- review the impacts of human activities and other influences on the species and its habitat and make relevant location-specific recommendations to maintain favourable status for Petalwort going forward.

2.3 Included here as Appendix A, the survey was undertaken in March 2023 and initially attempted to use an identical method to that employed by Lansdown in 2019. However, this soon became impractical because the hollows were not visible as discrete entities within the slack. This problem was compounded by a lack of geographical co-ordinates for individual hollows that could have helped to accurately relocate them.

2.4 Therefore, a slightly different approach was taken. A careful search of habitat that appeared to have potential to support Petalwort thalli in Greenland Lake Slack was undertaken and, where discrete colonies were found, they were georeferenced using a Garmin hand-held navigational receiver.

2.5 A search of the slack just west of the Visitor Centre where Petalwort had previously been translocated was also made but proved unsuccessful.

2.6 A comparison of the total number of thalli and their distribution across Greenland Lake Slack was made as far as practicable with the two most recent monitoring assessments.

2.7 Ground conditions were broadly favourable for the fieldwork, with no surface water lying in any part of Greenland Lake Slack. However, the slack had been flooded for a prolonged period in the winter months prior to the survey and this rendered much of it unsuitable for spring growth of thalli. Generally, Petalwort avoids areas which flood for prolonged periods, but notwithstanding that, any plants present in low-lying parts of the slack that might start into growth later than usual would not have been visible at the time of survey.

3. Monitoring results

3.1 619 thalli were found in approximately 300m2 of Greenland Lake Slack, in more or less similar places to where it has been seen previously. Most colonies supported relatively low numbers of individuals (fewer than 100).

3.2 It was not possible to directly compare the location of the colonies of Petalwort found in this assessment with those found from previous years because of uncertainty about the precise locations of the damp hollows they were previously mapped in.

3.3 The results indicate that the main track verge is currently the most important microhabitat for Petalwort at Dawlish Warren. 508 thalli (82% of the metapopulation) were found within 1-2 metres of the track edge over a distance of around 190 metres,

3.4 18% of the local group of connected populations of Petalwort (metapopulation, (111 thalli)) occupied ground north of the main track. There is less disturbance across this area, although the majority of thalli were associated with flat terrain that is compacted and scuffed by either vehicular movements or frequent human footfall.

4. Discussion

4.1 Monitoring of the metapopulation of Petalwort at Dawlish Warren has now been undertaken for 20 years. In that time, the counts of Petalwort have varied greatly.

4.2 It is unclear how many thalli were present before 2003, although the counts from previous surveys indicate that at least 2000 were counted from the site at that time. The most reliable count is from 2003, with a total of ca. 3100 thalli in the two slacks. Lansdown (2019) suggested that counts fell after that and stabilised in 2012, although by then the population was confined to Greenland Lake Slack.

4.3 The current findings indicate that numbers of thalli have halved since 2019. It is not clear if the prolonged flooding of parts of Greenland Lake Slack may have played a significant role in the numbers of visible thalli at the time of the most recent assessment. The assessment places emphasis on the findings that east of the main track, the only thalli seen were in areas where the slight changes in ground height would have elevated the plants above the main flood zone.

4.4 The current assessment reinforces the Lansdown (2019) position that reliance on a monitoring approach that requires clear delimitation of damp hollows is no longer practical. The 2019 monitoring provided an opportunity to test the condition assessment attributes and targets previously recommended (Lansdown 2012). He proposed an alternative target encompassing extent and abundance expressed in a simple form:

If five or more hollows support Petalwort and the total number of thalli recorded exceeds 1,000, including male and female individuals, then the metapopulation may be considered to be in favourable condition.

4.5 Because of the difficulty of locating and identifying the wet hollows, it is unclear how many were occupied in March 2023. Survey indicates that a minimum of five hollows were occupied, possibly more. Both sexes were represented but the total thallus count falls well short of the stated target. On this basis, the population would be considered to be in unfavourable condition.

4.6 For future monitoring, the survey proposes that it would be pertinent to employ an alternative target for metapopulation extent and condition assessment:

If Petalwort occupies 20 or more 10m OS grid squares and the total number of thalli recorded exceeds 1,000, including male and female individuals, then the metapopulation may be considered to be in favourable condition.

4.7 According to either target condition, the total thallus count results from 2023 indicate the population is in unfavourable condition.

4.8 The report suggests that the likely reasons for the decline in number of thalli seen in the current assessment may be complicated and, without further investigation of e.g., ground hydrology, entirely speculative. However, it may have been driven by the interplay of three main factors:

• natural succession and gradual drying of Greenland Lake;

• changed patterns of recreational trampling by visitors and vehicular movements by staff across Greenland Lake Slack; and

• climate change-linked increased summer desiccation and winter flooding of slack habitat reducing the availability of suitable Petalwort habitat. It is also possible that climate change could be affecting the water table. 2022 was the hottest year on record in England and the driest since 1935.

5. Prognosis/Conclusion

5.1 To address immediate concerns about the declining population of Petalwort in Greenland Lake Slack and longer-term issues relating to seawater inundation in this arear, the report recommends two approaches to management.

5.2 The first approach is the implementation of short-term measures to create new habitat niches in Greenland Lake. Encouragement of more directed footfall or vehicular movements would help to create new habitat niches. Any such action should of course avoid areas where other rarities are known.

5.3 The second approach returns to the idea of translocating turves to areas thought to be safe from ingress by seawater, encouraging a population to establish away from Greenland Lake Slack.

5.4 With the first attempt to translocate Petalwort to the slack just west of the Visitor Centre seemingly now unsuccessful, it remains to be seen how successful plans to relocate turves to another translocation (to a different place) will be.

5.5 In the slack immediately west of the Visitor Centre, promotion of greater public access across the edge of the slack may naturally restore suitable trampled habitat within a few years. Hence, even if Petalwort does not find its own way there, future translocation of turves containing Petalwort from Greenland Lake Slack may 'take' better than into other receptor sites.

South East Devon
Habitat Regulations
Executive Committee

January 2024

Natural England comment: Natural England have reviewed the report and have no further comment.