



Andrew Alston

By email

08 December 2014

Dear Andrew,

Re: Review of Landscape Practice Report- June 2014 – Condition Assessment at Catfield Fen: consideration of recent trends in distribution of Potamogeton and Liparis in Unit 3

Background

I am writing to provide comment on the above report submitted to Natural England on behalf of Mr Harris in June 2014.

Landscape Practice (LP) describes an increase in the distribution and abundance of *Sphagnum* moss within Unit 3 of the Ant Broads and Marshes Site of Special Scientific Interest (SSSI), and report that the spread of *Sphagnum* may be compromising the integrity of an important population of [REDACTED]. LP goes on to suggest that historic and ongoing groundwater abstraction may play a causative role in increasing the rate at which the *Sphagnum* is spreading which leads them to recommend cessation of local ground water abstraction. However, as they fail to describe other known factors that may be responsible for the spread of *Sphagnum* that are reported by others¹ I believe their report is prejudiced towards a single viewpoint and unbalanced.

For ease of reference, the other factors thought to be potentially involved with the spread of *Sphagnum* within SSSI Unit 3 of Catfield Fen and can be summarised as follows:

- Natural succession (terrestrialisation) of former turf ponds leading to localised increases in the height of the fen surface such that the fen plant community becomes more reliant on rainfall.
- A persistent increase in wetness in localised parts of the fen encouraging the spread of *Sphagnum* and localised increases in other species such as *Drosera rotundifolia*
- Changes in vegetation management – notably a change from burning management (practiced in the 1970s) to mowing. Burning is thought to directly destroy *Sphagnum* as well as restricting its growth by ash deposition. Mowing may not destroy *Sphagnum* and may result in its inadvertent spread.
- A decrease in the frequency and magnitude of fen surface flooding (with base rich water that has a high acid-buffering capacity) which has led to a decrease in surface pH and the establishment of calcifuge (acid loving) plants – mechanism/s not known but factors that could result in such change

¹ e.g. Wheeler, B. D. (June 2014) *Catfield Fen Comments – Some Ecological & Telematological Considerations*

include: improved flood defence, changes in sluice management, and raising of fen surface relative to surrounding water-bodies as a result of terrestrialisation.

The focus of this note is in relation to *Potamogeton coloratus* and its apparent demise and replacement by the bog pondweed *P. polygonifolius*, as this subject has not, as far as I can see, received critical review and could be accepted as fact which I believe is misleading and unjustified.

I am a professional ecologist with over 20 years of experience, including a PhD in aquatic ecology gained studying aspects of the aquatic macro-invertebrates and macrophytes of Wicken Fen in Cambridgeshire.

Fen Pondweed

Fen pondweed *Potamogeton coloratus* is a macrophyte species that is a reported interest feature of the Ant Broads and Marshes Site of Special Scientific Interest (SSSI). The SSSI citation states that *P. coloratus* occurs in permanent standing water pools that are present across the SSSI. Preston² describes the species as follows “....a species of shallow calcareous water usually less than 1m deep. It grows in pools, runnels and damp moss carpets in calcareous fens, in drainage ditches, at the margins of lakes, in ponds and streams and occasionally in flooded clay and marl pits.” The species is listed as Nationally Scarce in the UK, but it is not listed on the UK red data plant list as a species of concern.

Bog pondweed *Potamogeton polygonifolius* is a rhizomatous perennial that can grow as an aquatic form in shallow water in lakes, pools, the backwaters of rivers, streams and ditches, or in a dwarf, sub-terrestrial state in wet *Sphagnum* lawns or “brown moss” communities. It is usually restricted to acidic water, only rarely occurring in highly calcareous but nutrient-poor sites.

A condition assessment of Unit 3 of the Ants Broads and Marshes SSSI was completed by Natural England in 2013 and reported the presence of *P. coloratus* within the area. The same area was re-investigated by LP in 2014 who recorded only bog pondweed *Potamogeton polygonifolius*, leading LP to conclude that *P. coloratus* had been misidentified in 2013. While I have no reason to doubt the misidentification claim, I am concerned that the conclusions of the LP report are, in part, based on claims that cannot be substantiated and are therefore misleading.

Historic Distribution of *Potamogeton coloratus* and *P. polygonifolius*

On the basis of the available data, it would appear that the historic distribution of both *P. coloratus* and *P. polygonifolius* at Catfield is uncertain, and the claim by LP 2014 that there is little doubt that *P. coloratus* was formerly the most commonly occurring of the two pondweed species within the internal Catfield Fen system [Unit 3] is unfounded and unsupported by the data they present.

Of the ten distinct historic *P. coloratus* records provided in Annex 4 of the LP report, only one can confidently be attributed to occur in the SSSI management Unit 3, and this is not from inside the compartment but is on its northern edge (see **Figure 1.1** –Wheeler, B. D., 1974 record (no. 3)). The remaining records either have grid references that are too imprecise to be certain of their location (seven records – not shown on **Figure 1.1**), or are located outside of Unit 3 closer to and within (probably erroneously) Barton Broad (two records).

LP also suggests that, historically, *P. coloratus* may have been the only one of the two species present within Unit 3. However, this statement is misleading and disingenuous as the data provided in Annex 4 of their report indicates that, in addition to the 1974 Wheeler record for *P. Coloratus* at Catfield, a 1974 Catfield record for *P. polygonifolius* also exists (Driscoll, R. J. 1974 record – two figure grid reference not

² Preston C. D. (1995) *Pondweeds of Britain and Ireland* (BSBI Handbook 8)



Key

1.	<i>Potamogeton polygonifolius</i>	Driscoll, R. J.	27.5.1979
2.	<i>P. polygonifolius</i>	Ellis, R. W. <i>et al</i>	9.7.2009
3.	<i>Potamogeton coloratus</i>	Wheeler, B. D.	14.7.1974
4.	<i>P. coloratus</i>	Lambley, P. W.	No date
5.	<i>P. coloratus</i>	Daniels E. T.	1.8.1975
6.	<i>Potamogeton polygonifolius</i>	Parmenter, J.	15.6.2014
7.	<i>P. polygonifolius</i>	Parmenter, J.	15.6.2014
8.	<i>P. polygonifolius</i>	Parmenter, J.	15.6.2014
9.	<i>P. polygonifolius</i>	Parmenter, J.	15.6.2014
10.	<i>P. polygonifolius</i>	Parmenter, J.	15.6.2014
11.	<i>P. polygonifolius</i>	Parmenter, J.	15.6.2014
12.	<i>P. polygonifolius</i>	Parmenter, J.	15.6.2014
13.	<i>P. polygonifolius</i>	Parmenter, J.	15.6.2014



Figure 1.1: Fen & Bog Pondweed Records reported by Landscape Partnership - June 2014



shown on **Figure 1.1**). It would therefore appear that both species were present at Catfield in the 1970s, and there is clearly insufficient data to comment on abundance or distribution of both species at that time.

The 1968 Flora of Norfolk confirms that both pondweed species were known in Norfolk in the 1960s, but Catfield is not mentioned as a site for either species, and does not appear to be a particularly well recorded location at that time given a distinct lack of reference to the site throughout the flora.

In summary, there appears to be insufficient information on the historic distribution of *P. coloratus* to enable a scientifically robust assessment about its past and current distribution to be made, and the assertion that it was formerly the most widespread of the two species within the internal system at Catfield Fen is unsupported and misleading.

Current Distribution of *Potamogeton coloratus* and *P. polygonifolius*

LP states that *P. coloratus* has declined and has apparently been lost from part of Unit 3 (the Sedge Fen), but, as highlighted above, the basis for this claim is not supported by any convincing plant distribution data, and the historic pattern of distribution and abundance of *P. coloratus* and *P. polygonifolius* across the SSSI is unknown.

Summary

In summary, it is clear that the LP June 2014 report is misleading and biased towards a single view point, and, in the circumstances, the recommendation to halt ground water abstraction is unsupported by balanced scientific assessment and is unreasonable.

Yours sincerely,



Dr Duncan Painter CEnv MCIEEM

On behalf of Applied Ecology Ltd