Appendix 3

Ant Broads and Marshes SSSI Fen Orchid (*L. loeselii*) survey results 2014

Royal Society for the Protection of Birds, September 2014

Introduction

1. This report summarises the currently available fen orchid survey data from the UK with a focus on the Ant Broads and Marshes SSSI.

2. Three separate surveys have been carried out in the Ant Broads and Marshes SSSI in 2014:

    1. South Sutton Broad (part SSSI Unit 10), Plantlife, Pending completion and reporting
    2. Catfield Fen (Mill Marsh West, part SSSI Unit 3), RSPB, Complete
    3. The Wider Catfield and Irstead Fens (part SSSI Units 3, 6 and 11), The Landscape Partnership, Complete

3. Summary reports and maps of these three surveys are given below, with population estimates where appropriate and maps showing individual orchid plant locations.

4. The South Sutton Broad survey is pending completion and reporting, so the 2013 data is used here instead, supplemented by provisional 2014 data and informal surveying.

5. See "Definitions" at the end of this Appendix for terms, such as 'Spike' and 'Colony'.

2013 / 2014 Monitoring data

South Sutton Broad 2013 (with reference to incomplete 2014 survey)

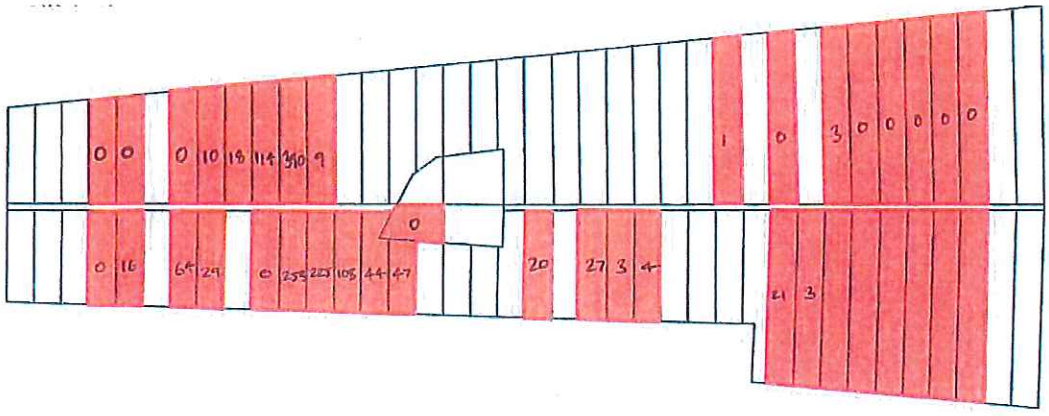

Figure 1: South Sutton Broad Fen orchid count 2013

White block = Not counted
Red block = Full count in 2013
Number = total number of Fen orchid spikes found in block (blank in red block = 0)

6. Since 2012, Plantlife has been employed by the RSPB to complete a detailed survey of a 3ha area of South Sutton Broad. The survey area is split into 80 areas that coincide with blocks of cut fen. 39 blocks were counted in 2013 with a total of 1326 orchid spikes found. In 2014, there has been a notable increase in the number of fen orchids counted. The higher counts appear to be mostly within the main clusters of plants. The population count for 2014 recorded 1538 spikes. Whilst these counts provide a good indication of the size of the population they are only partial counts of the full area that the fen orchid colony occurs.

7. There is an additional small colony of 30 spikes to the far East of Sutton Broad, not included within the above data that were counted in 2014.

Catfield Fen Mill Marsh West on Butterfly Conservation land, SSSI Unit 3

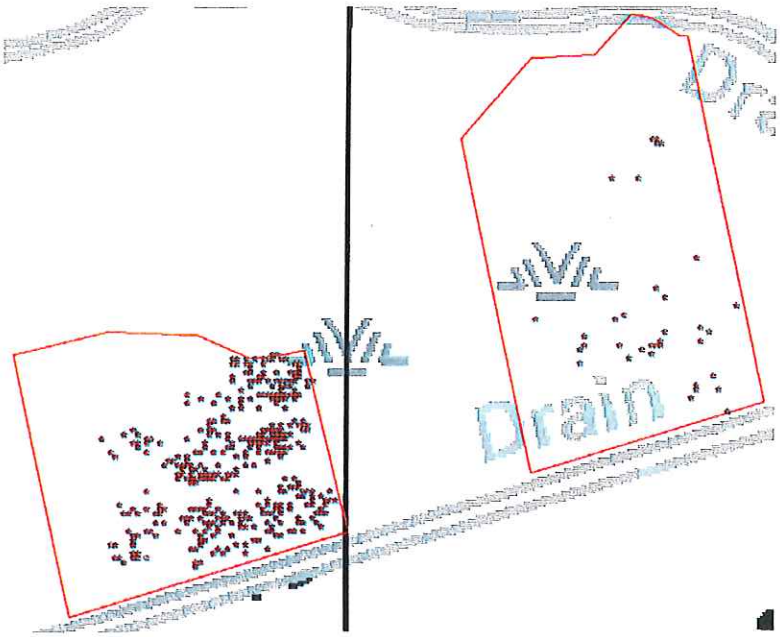

Figure 2: Catfield Mill Marsh West orchid count 2014

Red outlined blocks = Areas counted in 2014
Red stars = Fen orchid plant

8. The colony on Mill Marsh West, Unit 3, was found in 2009 and was monitored using various methods. Since 2013, a long term method was agreed with Plantlife and has been included in the site's SSSI management plan. This is to be reviewed to ensure the most appropriate survey method is being applied given the importance of establishing accurate population figures to identify population trends in the future.

9. Since 2013, RSPB has been monitoring the colony on Mill Marsh West. A full count is carried out on all reed plots cut in the preceding winter. As part of the reedbed is on a 4 year rotation, the whole

area has not yet been counted, so the 2013 and 2014 results are partial surveys with some overlap between years.

10. In 2014, 4 of the 9 survey blocks were counted, with a total of 1843 spikes found. This represents a notable increase in orchid numbers within blocks compared to 2013 data. The increase seems to be across all blocks, though there has been a loss of c.25 plants (60 spikes) from the north-west corner where *Sphagnum* encroachment is taking place.

The Wider Catfield and Irstead Fens

Figure 3: Catfield and Irstead Fens survey 2014

Green outlined blocks = Areas searched and counted in 2014
Green stars = Fen orchid plant

11. The Landscape Partnership were employed by the RSPB to thoroughly search potentially suitable habitat within the Ant Broads and Marshes SSSI for fen orchid in 2014. Two known colonies at

Catfield Great Fen and Mill Marsh East were found and counted with 187 and 83 spikes found respectively. No other, new, colonies were found. The 1 plant found at Catfield Hall Estate in 2013 was not re-found in 2014. Much of the remaining fen in the Ant valley is unsuitable for fen orchid. However, it is possible that unknown colonies may occur in isolated areas within the Ant valley.

Summary of known fen orchid locations within the Ant Broads and Marshes SSSI

Table 1: Most up to date counts of fen orchid colonies within the Ant Broads and Marshes SSSI. All numbers are number of 'spikes'

	SSSI Unit	2013 count	2014 count
Sutton Broad			
Sutton Broad South	10	1326 (partial)	1538 (partial)
Sutton Broad East	10	23 (full)	30 (full)
Catfield Fen			
Catfield Mill Marsh West (BC)	3	964 (partial)	1843 (partial)
Catfield Mill Marsh East (BC)	3	3 (partial)	83 (full)
Catfield Hall Estate	11	1(partial)	0 (full)
Catfield Great Fen	6	Not surveyed	187 (full)
Total		**2317**	**3469**

All numbers are number of 'spikes'

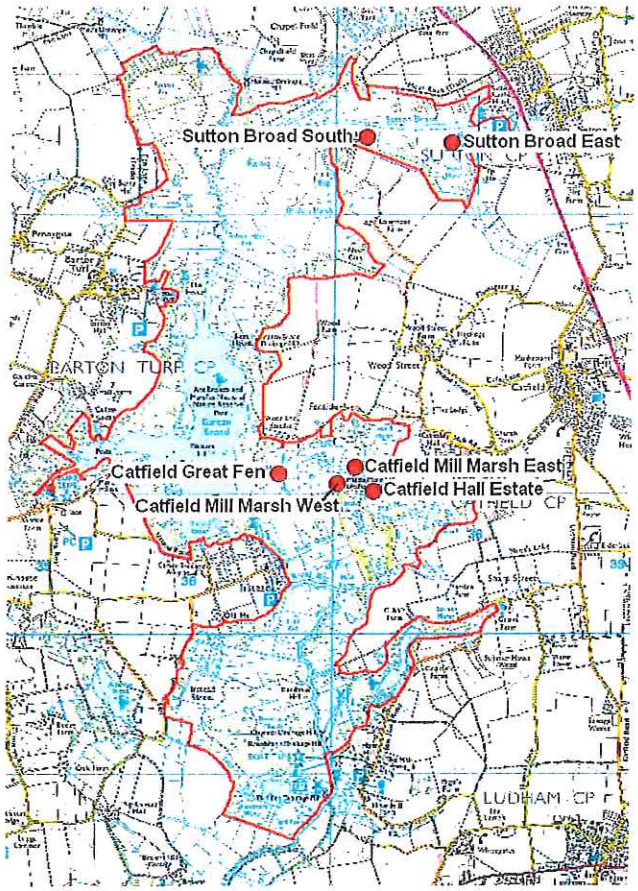

Figure 4: Recorded fen orchid locations within the Ant Broads and Marshes SSSI

Red outline = Ant Broads and Marshes SSSI boundary
Red dots = Centre of colonies

Summary of known UK colonies outside the Ant Broads and Marshes SSSI

12. There is an established population at Upton Fen which has been regularly monitored by the Norfolk Wildlife Trust. The population is known to fluctuate significantly over time and in 2013 it is understood that there were 12 spikes found. However, for confirmation and up to date information, NWT should be consulted.

13. The only other known fen orchid site outside the Broads in the UK is Kenfig Dunes where 45 plants were recorded in 2013 and a similar number in 2014 (David Carrington, *Pers. Comm.*).

Table 1: Most up to date counts of fen orchid colonies within the Ant Broads and Marshes SSSI. All numbers are number of 'spikes'

Other UK colonies	SSSI Unit	2013 count	2014 count
Upton Fen (Broads)[2]		12 (full)	38 (full)
Kenfig Dunes (Bridgend, Wales)[3]		45 (full)	40 (partial)
Total		**57**	**78**

All numbers are number of 'spikes'

[1] The introduced population at Ranworth is not included - the plants are of non-UK origin and are not considered part of the native fen orchid population.

[2] Personal Communication with Tim Pankhurst (Plantlife), figure not verified.

[3] *Liparis loeselii Ovata* (Dune variety) subspecies.

Discussion of fen orchid data from 2014

14. In 2014, in the UK, fen orchids were found in 4 locations. Within Sutton Fen and Catfield fen different colonies or sub-colonies exist. The estimated combined population size of these colonies ranges from 2374 spikes in 2013 to 3547 spikes in 2014. The majority of the UK's fen orchids are found on a few sites in the Broads, with one colony (of subspecies *L. l. Ovata*) found in Wales.

15. The Ant Broads and Marshes SSSI hold over 99% of the known UK population of fen orchid. Over 97% of the UK population is confined to two locations (Sutton Broad South and Catfield Mill Marsh West).

16. Any assessment of population trends of orchids over short timescales is difficult, as fen orchid populations fluctuate annually and are sensitive to a range of biotic and abiotic factors.

17. For further assessment of the Catfield Mill Marsh West population and the potential threat of hydrological change and *Sphagnum* spp. expansion see the separate report titled 'Catfield Mill Marsh West fen orchid survey 2014, RSPB'.

Definitions

Fen orchids in the Ant valley have a fairly typical and consistent growth form, they generally occur as a cluster of spikes growing in close proximity. These clusters are usually one plant all having originated from the initial coloniser (which could have germinated from seed or propagated asexually from plant material). Over time the plant sends up new spikes, some of which flower, but often do not. For the sake of clarity, below are the definitions used in this report:

Non flowering spike – the (usually smaller) spikes of 1 or 2 leaves that do not bear a flowering spike.

Flowering spike – the (usually larger) spikes of 2 leaves that do bear a flowering spike (though at the time of survey the actual flowers may be yet to bloom, or may have gone to fruit).

Spike – both flowering or non-flowering spike, this is generally used as the total population count (total number of spikes).

Plant – The group of flowering and non flowering spikes that make up one plant. This is subjective (which is why it is not used for the population count), as sometimes plants are growing adjacently and it is impossible to separate one plant from the next. However, this is generally used for mapping purposes as it is generally not practical to present a map showing each individual spike (as they can grow in such close proximity).

Cluster – A cluster of plants. Often fen orchids in the Ant valley have a 'clumpy' distribution and within a colony are often found clustered into a few small areas with outliers in between.

Colony – A discrete colony of plants separate from other colonies by a barrier (for example, a ditch, scrub, unsuitable fen).

Block – A survey area, often coinciding with a management area (a reed plot for example).