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Elliott Hughes
Mott MacDonald Bentley
Ty Awen
Spooner Close
Celtic Springs Business Park
Newport
NP10 8FZ

30 October 2020

Dear Elliott,

Proposed works at Pengarnddu service reservoir, Dowlais Top, Merthyr Tydfil.

Notes following check for fungi, 29 October 2020

I carried out a check for grassland fungi at Pengarnddu yesterday morning as requested, accompanied by your colleagues Huw and Ashley, who were able to clarify the extent of the proposed construction works.

Survey conditions were poor due to rain and strong wind, but it was still possible to find and identify grassland fungi. However, the sub-optimal weather did limit taking photographs and meant that a higher proportion of specimens had to be collected for subsequent confirmation by microscope. The survey was undertaken by a simple walk-over method, covering the area by a series of informal transect lines, aiming to pass within approximately 5-10m of all parts of the search area.

Search effort was focussed on waxcaps (*Hygrocybe* spp.), Fairy Clubs (Clavariaceae) and Earthtongues (Geoglossaceae), because these are recognised as being valuable indicators of grassland with high nature conservation value. *Entoloma* species were not identified to species due to potential for misidentifications, especially from such weather-beaten specimens. Other genera that were present included *Panaeolus*, *Stropharia*, *Galerina* and *Psilocybe*, but these were not recorded as they have little significance for nature conservation.

On arrival at the site it was evident that there was an area with abundant waxcaps on old spoil heaps to the south of the existing reservoir. It was decided to search this area too, to provide a comparison with the proposed construction area and help to place the findings in a wider context.

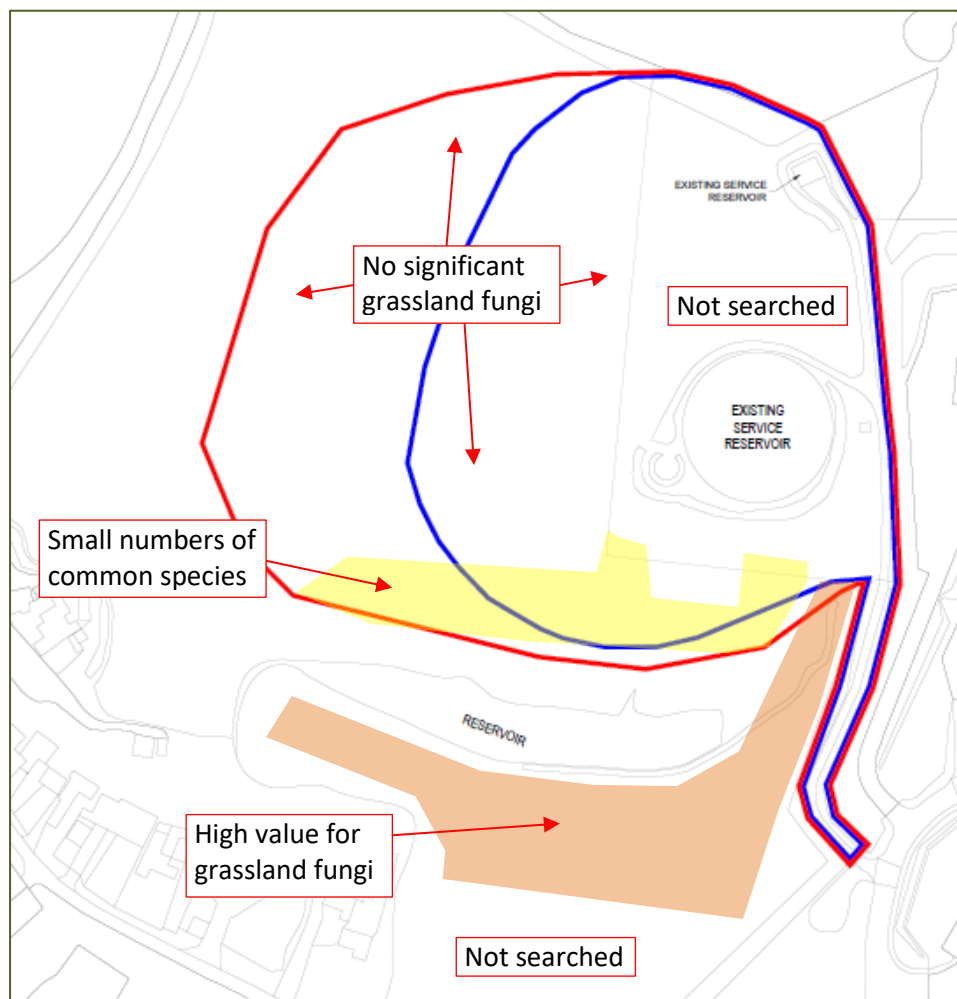
Some areas were excluded from the search because they have been subject to recent earthworks and compaction by heavy machinery. Others were excluded because of standing water or marshy vegetation that would not be suitable for grassland fungi. In addition, it was not possible to access within the existing reservoir compound (and the grass in the compound had only just been mown). On looking through the railings it seemed unlikely that the compound would have held any notable fungi, although a few patches of *Hygrocybe virginea* were noted within about 5m of the fence in a few places.

The observations from today's visit are summarised in Table 1 below. I have also marked up one of your plans to show the approximate distribution of fungi in the areas that were searched, as Figure 1. I've included a few photographs as an appendix, but unfortunately the poor weather and a wet camera means that most of the images are poor quality, and I haven't included many fungi pictures.

Table 1. Grassland fungi observations 29 October 2020

Species	Common name	Construction area	Adjacent southern area
<i>Hygrocybe ceracea</i>	Butter Waxcap		✓
<i>Hygrocybe chlorophana</i>	Golden Waxcap		✓
<i>Hygrocybe conica</i>	Blackening Waxcap		✓
<i>Hygrocybe insipida</i>	Spangle Waxcap		✓
<i>Hygrocybe laeta</i>	Heath Waxcap		✓
<i>Hygrocybe mucronella</i>	Bitter Waxcap		✓
<i>Hygrocybe pratensis</i>	Meadow Waxcap		✓
<i>Hygrocybe psittacina</i>	Parrot Waxcap	✓	✓
<i>Hygrocybe quieta</i>	Oily Waxcap		✓
<i>Hygrocybe reidii</i>	Honey Waxcap		✓
<i>Hygrocybe russocoriacea</i>	Cedarwood Waxcap		✓
<i>Hygrocybe virginea</i>	Snowy Waxcap	✓	✓
<i>Clavaria acuta</i>	Pointed Club	✓	✓
<i>Clavaria fumosa</i>	Smoky Spindles		✓
<i>Clavulinopsis helvola</i>	Yellow Club		✓
<i>Clavulinopsis luteoalba</i>	Apricot Club		✓
<i>Entoloma spp.</i>	Pinkgill (at least 4 species present)		✓
<i>Geoglossum fallax</i>	An earthtongue		✓

Figure 1. Grassland fungi observations, 29 October 2020



On the basis of yesterday's findings I would conclude that the majority of the proposed construction area has negligible value for grassland fungi. It is usually not possible to say this with certainty on the basis of just one survey visit, but the confirmation of abundant fungi to the south indicates that the timing was ideal on this occasion. The observation of large areas of disturbance and soil compaction from recent ground investigations also means that this area is likely to have already lost any value that it may have had.

The southern part of the construction area does support a few common species, and I recommend that this should remain undisturbed if possible. This is because fungi populations only develop very slowly over time, and there may be species that are present within the soil that are not yet at the stage where they produce fruiting bodies. In particular, I hope that it would be possible to retaining the area immediately adjoining the eastern end of the compound fence, which was the only location for *Hygrocybe quieta* on today's survey.

I recommend that the area of high fungi diversity beyond the south of the proposed construction area should be protected from disturbance during the proposed works. Grassland habitat such as this, with 9 or more species of waxcaps, is assessed as being important in a county context¹. The value of the area should be made known to Dwr Cymru Welsh Water so that they can ensure that it is protected during any future works. The Merthyr Tydfil County Borough Council Ecologist should also be informed, so that the information can be added to the data for the Blaenmorlais Site of Importance for Nature Conservation (SINC) (the study area lies within the designated SINC).

Fungi surveys are usually undertaken by repeat visits over several months through the fruiting season, which enables a wider range of species to be recorded. I do not think this is necessary for the proposed construction area, although further surveys would almost certainly record additional species in the land to the south.

Please let me know if you require any further information.

Yours sincerely,

A handwritten signature in blue ink, reading 'P.W. Sturgess'.

Peter Sturgess

¹ Criteria for the Selection of Sites of Importance for Nature Conservation in the County Boroughs of Blaenau Gwent, Caerphilly, Merthyr Tydfil and Rhondda Cynon Taf (the 'Mid-Valleys Area') Prepared by Caerphilly County Borough Council, Merthyr Tydfil County Borough Council and Rhondda Cynon Taf County Borough Council. June 2008.

Appendix. Photographs from site visit



*The grassland within the compound was not accessed, but it appears to be mostly too damp and disturbed to be of high value for fungi, although small numbers of *Hygrocybe virginea* were observed through the railings.*



Some of the grassland south of the reservoir compound fence has been subject to recent ground investigations. This would have removed any potential interest for grassland fungi from these areas.



Much of the proposed construction area west of the compound has been disturbed by recent earthworks. This would not be expected to support any grassland fungi and was therefore not included in the search area.



Recent track marks from heavy machinery and puddles of standing water indicate that much of the construction area is disturbed, compacted and waterlogged, and so is unlikely to have value for grassland fungi.



*Formerly disturbed ground in the south of the construction area has been colonised by small numbers of common grassland fungi, such as these *Hygrocybe virginea*.*



The land to the west of the proposed reservoir supports very few fungi. Factors contributing to this may include water-logging, ground compaction, off-road vehicles and pollution (e.g. from burned out cars or fly-tipping).



Hygrocybe virginea – *Snowy Waxcap*. A very common species, and the most frequent species in the construction area.



Hygrocybe psittacina – *Parrot Waxcap*. A very common species, present within the construction area.



A large *Hygrocybe pratensis* specimen. This was one of the more frequent species south of the proposed construction area.



Hygrocybe laeta – *Heath Waxcap*.
Found in several places south of the
construction area.



Hygrocybe mucronella – *Bitter
Waxcap*. Only seen in 2 locations
south of the construction area.



A patch of *Hygrocybe ceracea* south
of the proposed works area.



A mix of Hygrocybe virginea and H.pratensis on old spoil heaps south of the proposed works area.



A very weathered specimen of Clavaria fumosa (Smoky Spindles) south of the construction area.



Geoglossum fallax (an earthtongue), south of the construction area.