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Sent: 05 November 2019 15:01
To: M42 Junction 6
Cc: Horswill, Paul
Subject: M42 NSIP - Junction 6 M42 Fungi Report - NE comments
Attachments: NE Specialist comments on TR010027-000751-TR010027_M42J6_8.65_Fungi_Survey_Report_2019 (revised 28Oct19).docx; M42 Junction 6 Improvement Scheme comments on lichen survey report 8.48+....docx

Good afternoon

M42 NSIP - Junction 6 M42 Fungi and Lichen Reports - NE comments

Please find attached NE's comments in respect of the outstanding comments on fungi and lichens.

Tim Wilkins, as our senior specialist in lichens and non-lichenized fungi, has reviewed the reports.

- 1) Fungi report - comments as enclosed.
- 2) Tim commented on the lichen survey report using Dr Marion Bryant's (NE) comments on the same document. Tim highlighted one comment that could be of significance (p.2) relates to the potential extension of the woods as mitigation. A number of notable species occur along the woodland edge because of the elevated light levels. Planting new adjoining woodland would likely reduce these light levels. One potential solution would be to leave a substantial ride or track between the two woodlands.

These comments were issued direct to AECOM 28 October 2019.

Should you have any comments or questions in respect of these submissions please do not hesitate in contacting me.

Many thanks,

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*Hours of work – 27 hours per week:
Generally Mon.9.30-3.00; Tues. 8.00-5.30; Wed. 9.30-3.00; Thurs.9.30-3.00; Fri.9.30-1:00*

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Natural England Specialist comments on report:

M42 Junction 6 Development Consent Order; Scheme Number TR010027

8.65 Fungi Survey Report 2019

| Version | Date |
|---------|-----------------|
| 1 | 11 October 2019 |

Report entitled: ‘Fungal Diversity Survey of Asbury’s Copse, a woodland compartment adjacent to Catherine- de-Barnes, Solihull’

General comments

The author, Neville Kilkenny, is a highly experienced field mycologist. He is a Research Associate in Mycology at the Royal Botanic Gardens Edinburgh and has previously undertaken mycological contracts for the James Hutton Institute and Scottish Natural Heritage, amongst others.

Overall I have high confidence in what the report says and the conclusion it reaches (p.10). Without carrying out a detailed comparison with other ancient woodlands in the West Midlands (assuming fungal surveys have been undertaken), it is difficult to be definitive about ‘county importance’ but this is considered a reasonable assessment of the site’s conservation value for fungi. Bearing in mind the high proportion of saprotrophic fungi reported, it will be important for their conservation to maintain the continuity of deadwood (standing and fallen; all types and sizes).

The 2019 survey was conducted over 2 days in September. However, as stated in the report, with fungi it is impossible to get a true picture of fungal diversity, or the species present, through snapshot fruitbody surveys. Compared to some taxonomic groups, there is a very strong correlation between survey effort and species diversity with fungi which can continue for decades (Tofts & Orton, 1998).

The dry weather conditions in 2019 were not conducive to fungal fruitbody appearance, hence it’s fortunate the site had been surveyed by Kilkenny on a number of previous occasions (three visits in 2014 and two visits in 2018). When assessing the conservation value of fungus sites, it is necessary to include survey data from all recent years and even recent decades. In this case, over a total of six visits, 112 fungus species were recorded (according to the report).

None of the fungi recorded at Asbury’s Copse are listed as species ‘of principal importance’ for England under Section 41 of the Natural Environment and Rural Communities Act (2006), nor specially protected under Schedule 8 (Wildlife & Countryside Act 1981, as amended). This should have been stated in the report.

Note that the Red List cited, Davies et al., 2016, has not been quality assured as IUCN-compliant by JNCC or the country statutory conservation agencies. However, the project manager is a qualified IUCN Red List assessor. This also applies to Jordan et al (2017, 2018).

The report suggests that the lack of ectomycorrhizal (EcM) fungi recorded could be due to nitrogen deposition. The impacts of nitrogen pollution on EcM fungi are well documented globally (e.g. Arnolds 1991, Suz et al 2014, de Witte et al 2017, van Strien et al 2018, Lilleskov et al 2019). Nevertheless it is also likely that woodland clearance and/or replanting would have had a major impact on this fungal group. Many EcM fungi are specialised and entirely dependent on their tree hosts. If a disruption in woodland continuity occurred in the past, this could have caused a reduction in EcM fungal diversity although species can persist and EcM community composition can change (Jones et al 2003, Johnson et al 2014).

Minor comments on the text

- **In the Executive Summary (p.2):** The presence of two 'old woodland' species as *evidence of continuity of woodland* is questionable. Both species are saprotrophic (wood rotters) and therefore it would be more accurate to say their survival indicates the continuity of their deadwood habitat. Since the site is considered 'replanted ancient woodland', it is also possible that these species have re-established from neighbouring ancient woodland - e.g. Barber's Coppice. In addition, only one of the two 'old woodland' species are not named in the report. It is not clear to which of the other species this applies.
- **In the Executive Summary (p.2):** "In addition to previous surveys, one further species has been recorded in 2019 and another species rerecorded, which would indicate continuity of woodland habitat." Again, it is not very clear in body of report to which species these comments apply.
- **In the Executive Summary (p.2):** "The guidelines suggest that a site from which *more than eight* of the 16 species are recorded should be considered for notification. Four of these species have now been recorded at Aspbury's Copse and a further three species from other woodland compartments close-by." The guidelines (Bosanquet et al. 2018) state: if the total count reaches or exceeds eight. This is stated incorrectly in the summary, but correctly on p. 8 of the report.
- **Under 'Results and Analysis' (p.4):** "The list of species recorded during the 2019 survey are presented in Table 1." But Table 1 is a list of records, not species. It also says "For context the species list of fungi recorded in 2018 are also provided in Annex A." Again these are records, not a species list.
- **Under 'Limitations' (p.4):** "As the survey was not based on a transect or plot methodology, it should be noted that it will not be possible to objectively compare these results with data generated from future mycological survey work." Since the method comprised a random walkover survey, it is reasonable to suppose that a future survey of this type, all things being equal (e.g. time of year, duration, mycological

experience, survey conditions) would be comparable (variations between years being more likely due to factors affecting fungal fruitbody production).

- **Under Ancient Woodland Indicators (p.9):** “the ancient woodland of Barber’s Coppice, which lies to the east of Aspbury’s Copse...” This is incorrect, it lies to the west.
- **Under ‘Other Notable Records’ (p.9):** *Boletus cisalpinus* is listed as Least Concern in Ainsworth et al. (2013). This red list should be cited & in references.
- **Under ‘Other Notable Records’ (p.9):** *Hebeloma crustulineforme* is red-listed as Least Concern in Jordan et al. (2018). This red list should be cited & in references.
- **Under ‘Other Notable Records’ (p.9):** I’m not aware of any British IUCN red lists that have assessed *Scleroderma* species although *S. citrinum* and *S. verrucosum* are common and widespread taxa in England. If, however, they have been assessed, the red list should be cited & included in references.
- **Under ‘Other Notable Records’ (p.10):** “however, according to the second RDL published by the Fungus Conservation Trust (Davies et al., 2016) it was assessed as ‘Endangered’.” It is not clear from the text that this relates to *Agaricus subrufescens*, not *Agrocybe rivulosa*.
- **Under ‘Other Notable Records’ (p.10):** *Pluteus salicinus* is red-listed as Least Concern in Davies et al. (2016). This should be stated and cited.
- **Under ‘Other Notable Records’ (p.10):** *Mycena inclinata* is red-listed as Least Concern in Jordan et al. (2017). This should be stated and cited.

Constraints of this review

Kilkenny (2014) was not evaluated. Consequently it has not been possible to verify the total number of species recorded (112).

References (mostly additional to the report)

Ainsworth, A.M., Smith, J.H., Boddy, L., Dentinger, B.T.M., Jordan, M., Parfiitt, D., Rogers, H.J. and Skeates, S.J. 2013. Red List of Fungi for Great Britain: Boletaceae. A pilot conservation assessment based on national database records, fruit body morphology and DNA barcoding. Species Status No. 14. Joint Nature Conservation Committee, Peterborough.

Arnolds, E., 1991. Decline of ectomycorrhizal fungi in Europe. *Agriculture, Ecosystems & Environment*, 35(2-3), pp.209-244.

Bosanquet, S.D.S., Ainsworth, A.M., Cooch, S.P., Genney, D.R., & Wilkins, T.C. 2018. Guidelines for the Selection of Biological SSSIs. Part 2: Detailed Guidelines for Habitats and Species Groups. Chapter 14 Non-lichenised Fungi. Joint Nature Conservation Committee, Peterborough.

Davies V., Jordan M., & Nichol P. (2016). Red List (2) of Fungi for Great Britain: *Agaricus*, *Clitocybe*, *Clitopilus*, *Cystolepiota*, *Hygrophorus*, *Leucoagaricus*, *Leucocoprinus*, *Lyophyllum*, *Melanoleuca*, *Pholiota* and *Pluteus*. The Fungus Conservation Trust.

De Witte, L.C., Rosenstock, N.P., Van Der Linde, S. and Braun, S. 2017. Nitrogen deposition changes ectomycorrhizal communities in Swiss beech forests. *Science of the Total Environment*, 605, pp.1083-1096.

Johnson, J., Evans, C., Brown, N., Skeates, S., Watkinson, S. and Bass, D., 2014. Molecular analysis shows that soil fungi from ancient semi-natural woodland exist in sites converted to non-native conifer plantations. *Forestry: An International Journal of Forest Research*, 87(5), pp. 705-717.

Jones, M.D., Durall, D.M. and Cairney, J.W., 2003. Ectomycorrhizal fungal communities in young forest stands regenerating after clearcut logging. *New Phytologist*, 157(3), pp.399-422.

Jordan, M., Davies, V. & Nichol, P. 2017. Red List (4) of Fungi for Great Britain: *Delicatula*, *Hemimycena*, *Inocybe*, *Marasmius*, *Mycena*, *Russula*. The Fungus Conservation Trust.

Jordan, M., Davies, V. & Nichol, P. 2018. Red List (5) of Fungi for Great Britain: *Entoloma*, *Gymnopus*, *Hebeloma*, *Hygrocybe*, *Lactarius*. The Fungus Conservation Trust.

Kilkenny, N. (2014) Fungal Diversity Survey of Three Woodland Compartments Adjacent to Catherine-de-Barnes, Solihull. Unpublished report to Wardell Armstrong LLP.

Lilleskov, E.A., Kuyper, T.W., Bidartondo, M.I., Hobbie, E.A. 2019 Atmospheric nitrogen deposition impacts on the structure and function of forest mycorrhizal communities: A review. *Environmental Pollution*, 246, pp. 148-162.

Suz, L.M., Barsoum, N., Benham, S., Dietrich, H.P., Fetzer, K.D., Fischer, R., García, P., Gehrman, J., Kristöfel, F., Manninger, M. and Neagu, S., 2014. Environmental drivers of ectomycorrhizal communities in Europe's temperate oak forests. *Molecular Ecology*, 23(22), pp. 5628-5644.

Tofts, R.J. and Orton, P.D. 1998. The species accumulation curve for Agarics and Boletes from a Caledonian pinewood. *Mycologist* 12, 98-102.

van Strien, A.J., Boomsluiters, M., Noordeloos, M.E., Verweij, R.J. and Kuyper, T.W., 2018. Woodland ectomycorrhizal fungi benefit from large-scale reduction in nitrogen deposition in the Netherlands. *Journal of applied ecology*, 55(1), pp.290-298.

Tim Wilkins
Natural England - Senior Specialist – lichens & non-lichenised fungi
Revised 28 Oct 2019

M42 Junction 6 Improvement Scheme comments on 8.48 Lichen Survey Report 2019

Dr Marion Bryant Woodland and Trees Specialist, Specialist Services and Programmes, Natural England

7/10/19

Please note that I comment on this report as a woodland habitat ecologist and not as a lichen specialist. Any comments on specific lichen species would need to be provided by a lichen specialist.

The two halves of Aspbury's Copse support different lichen communities: the eastern half supporting a relatively common and widespread flora of 29 species and the western half supporting a richer species diversity, of 37 species, with scarcer species, some of which are assessed as having regional value. Of a total lichen flora of 44 species, 4 lichen species are nationally scarce, and 2 species of lichenicolous fungi are nationally scarce. However, the report points out that this is a relatively poor lichen flora for ancient woodland, with pollution tolerant species and species indicative of nutrient enrichment. The proximity of the M42 motorway, West Midlands conurbation and intensive agriculture dictates that the impacts of air pollution and nutrient enrichment are highly likely at this location. Whilst the extant lichen flora appears to be limited by the effects of air pollution and eutrophication, especially at the woodland edges, this woodland is a significant site for the broader re-colonisation by lichens should air quality improve.

The eastern half of Aspbury's Copse has a tree canopy which casts a dense shade, which is suboptimal for many lichen species. Mature ash, oak, field maple and poplar trees provide the best lichen substrates in the wood. The report recommends tagging lichen trees, which will assist with future monitoring of the lichen community and will inform suitable woodland management.

Given the results of the lichen survey Natural England make the following woodland management recommendations:

- Undertake selective canopy thinning, especially in the shaded eastern half of the wood, to increase light levels and ameliorate conditions for lichens.
- Retain veteran and mature trees where possible, especially ash, oak, field maple and poplar.
- Retain important lichen trees.
- Do not manage ash out of the woodland because of ash dieback – retain veteran and mature trees where possible.
- Renew the canopy by promoting and protecting natural regeneration (including ash).
- Monitor woodland species and structural composition.
- Promote suitable species (native broadleaves) and structural diversity.
- Retain deadwood in situ.

- Buffer and extend the woodland to reduce edge effects (air pollution and eutrophication) on the ancient woodland and its lichen community. It is particularly important to buffer and extend the western half of Aspbury's Copse in order to protect the regionally significant lichen flora in the western half of the wood.

The site is assessed as being regionally important for lichens and as having some bryological potential. This assessment adds weight to the importance of this irreplaceable ancient woodland habitat.