



Norfolk County Council

Norwich Western Link

Fungal Survey Report





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1 Introduction

1.1 Project background

- 1.1.1. The Norwich Western Link Road (NWL) is a highway scheme linking the A1270 Broadland Northway from its junction with the A1067 Fakenham Road to the A47 trunk road near Honingham.

The NWL, hereafter referred to as the Scheme, will comprise:

- Dualling the A1067 Fakenham Road westwards from its existing junction with the A1270 to a new roundabout located approximately 400m to the northwest.
 - Construction of a new roundabout.
 - Constructing a dual carriageway link from the new roundabout to a new junction with the A47 near Honingham.
- 1.1.2. As part of a separate planned scheme, National Highways proposes to realign and dual the A47 from the existing roundabout at Easton to join the existing dual carriageway section at North Tuddenham. If that scheme proceeds, it is expected that National Highways will construct the Honingham junction, and the Norwich Western Link will connect to the north-eastern side of that junction.
- 1.1.3. The Scheme will cross the River Wensum and its flood plain by means of a viaduct. In addition, six other structures are proposed to cross minor roads and to provide habitat connectivity. The Scheme will include ancillary works such as provision for non-motorised users, necessary realignment of the local road network, including the stopping up of some minor roads, and the provision of environmental mitigation measures.

1.2 Ecological background

- 1.2.1. A Habitat Survey (WSP UK Ltd., 2020), undertaken in 2020, identified the presence of habitats including woodland and hedgerows which could support fungal interest. Local knowledge also indicated the presence of sandy stiltball *Battarrea phalloides*, a Red Data List fungus protected under the Wildlife and Countryside Act 1981 (as amended) from the general vicinity (within some 10 km). It was therefore recommended that a fungal survey be undertaken to establish a sufficient baseline to inform impact assessment.

1.3 Brief and objectives

- 1.3.1. WSP UK Ltd was commissioned by Norfolk County Council to undertake a fungal survey, with the following objectives:

Investigate woodland and hedgerow habitats for their potential fungal interest, focusing on the larger fungi and compiling a list of species recorded during the survey visits.

Given the seasonal and time constraints (see Section 3.4) which will inevitably limit the range of species recorded, identify the fungal potential of the various areas based upon the habitats and features present.

Present the findings of the survey in a baseline report.

- 1.3.2. The survey findings will be used to inform the impact assessment and proposed mitigation for fungi present across the Scheme. Details of the impact assessment and mitigation will be included within the Biodiversity Chapter of the Environmental Statement for the Scheme.

1.4 Study and survey areas

- 1.4.1. An ecological Desk Study was completed in March 2020 to include recent data relevant to the Scheme. The Study Area for this was defined as a 2km radius of the Scheme, shown in Appendix A.
- 1.4.2. The Survey Area in relation to fungi generally focused on areas of woodland and hedgerows within the Scheme boundary, shown in Appendix B.
- 1.4.3. Due to access limitations, only a series of woodlands and hedgerows in the northern part of the site were surveyed on the initial visits in October 2020. Further site visits covering the remaining suitable habitats were therefore undertaken in late May 2021.

2 Relevant legislation

2.1 Legal compliance

- 2.1.1. Fungi are of fundamental ecological importance, being vital in the transfer of nitrogen and phosphorus from the environment into plants and breaking down carbon, for example. Mycorrhizal fungi control many ecosystem processes (Bidartondo & Suz, 2020, and references therein) but they are poorly represented in terms of legal protection, with only a small number of fungi given legal protection under Schedule 8 of the Wildlife and Countryside Act 1981 (as amended).
- 2.1.2. In addition to legal protection, a Red Data List of fungi has been produced (<https://www.britmycolsoc.org.uk/mycology/conservation/red-data-list>) and local lists of rarities have also been produced to cover various parts of the country. In Norfolk, two species of fungi are listed by the Norfolk Biodiversity Partnership (<http://www.norfolkbiodiversity.org/habitats-and-species/fungus/>) – sandy stiltball *Battarrea phalloides* and nail fungus *Poronia punctata*.

3 Methods

3.1 Desk study

- 3.1.1. An ecological desk study was completed in March 2020 to include recent data relevant to the Scheme. Records of any notable or legally protected species, including fungi, from within a 2km radius of the Scheme (Appendix A) were requested from Norfolk Biodiversity Information Service (NBIS).

3.2 Field survey

- 3.2.1. The survey comprised a detailed investigation of the woodland and hedgerow habitats within the Survey Area (Appendix B) for potential fungal interest, focusing on the larger fungi. Specimens which could not be identified in the field were collected for lab identification. A list of species recorded during the site visits was compiled and presented in Table 4-1 – Survey Results.
- 3.2.2. Lab identification involved the examination of spores and various structural elements as necessary using binocular and compound microscopes, the latter with magnification of up to x1000 using an oil immersion objective. Various chemicals including Melzer's reagent were also used as required.
- 3.2.3. Although DNA-based identification of fungi is likely to play an increasing role in identifying sites that are of conservation value in the future, current selection criteria (e.g. Bosanquet *et al*, 2018) are still based upon morphological species concepts that require identification using the well-established methods adopted here.
- 3.2.4. The fungal collections were identified using a wide range of modern and 'classic' British and European literature as appropriate including the British Fungus Flora series (Henderson *et al*, 1970-2005), Funga Nordica (Knudsen & Vesterholt, 2008), Flora Agaricina Neerlandica (Bas *et al*. 1988-2018). Kühner & Romagnesi (1953), Moser (1983) and various specialist monographs such as Maas Geesteranus (1992) but including older classic works such as Kühner (1935). The major illustrated series including Lange (1935-1940), Konrad & Maublanc (1924-1930), Bresadola (1927-1932) and Breitenbach & Kränzlin (1984-2005) were also referred to as necessary. Nomenclature follows the British Fungal Records Database and author citations are therefore not given.

3.3 Dates of survey and personnel

- 3.3.1. The survey was conducted by a competent and experienced mycologist on 22 and 23 October 2020 and 25, 26 and 27 May 2021.

3.4 Notes and limitations

- 3.4.1. The range of fungal fruitbodies in evidence at any one time varies with the seasons. Some species (e.g. *Conocybe aporos*) tend to be found during the spring, others at various stages through the summer and autumn and some (e.g. *Flammulina velutipes*) are frequently encountered during the winter months. The autumn months tend to be the most productive for surveys of fungal fruitbodies although the presence or absence of fruitbodies also reflects the environmental conditions leading up to the time the survey was undertaken, with dry periods typically yielding poor results and a 'flush' of fruitbodies often following a period of rain. Additionally, some species fruit only occasionally and may not be seen for a period of years even when conditions are seemingly suitable. Any survey of fungal fruitbodies will therefore only reveal a small proportion of the total number of species occurring at a site and a true picture of the mycological richness of a location is only likely to be confirmed after years of study. Orton (1986) suggested that data should be collected over a ten-year period to provide a reasonably comprehensive picture of the mycota of a site. And the list of species from an area of Caledonian pinewood surveyed by Orton, for example, continued to grow at a steady rate even after two decades of detailed study (Tofts & Orton, 1998).
- 3.4.2. In addition to the time limitations arising from work being commissioned in October 2020 and the results being required by summer 2021, access permission imposed a further constraint because only the northern part of the Survey Area was accessible during autumn 2020 and the remainder was not accessible until spring 2021.
- 3.4.3. It was evident during the course of the autumn survey that an earlier flush of fruitbodies had passed, with some examples of *Russula* and *Boletus* species being rotten, mostly eaten by mammals, covered with secondary moulds or otherwise unidentifiable. Several very large genera including *Inocybe* and *Cortinarius* were very conspicuous by their absence. It is inconceivable that no examples of such genera are present within the surveyed areas and the failure to record any serves to underline the point that one or two brief visits will not produce a species list that is anywhere approaching comprehensive.
- 3.4.4. Evaluation of the fungal potential of the Survey Area was therefore based heavily upon an assessment of the habitats and features present and their value to fungi.
- 3.4.5. Despite the limitations encountered, the findings of this report are considered valid to inform impact assessment.

4 Results

4.1 Desk study

- 4.1.1. The desk study did not return any records of fungi, although local knowledge indicated the presence of sandy stiltball *Battarrea phalloides*, a Red Data List fungus protected under the Wildlife and Countryside Act 1981 (as amended) from the general vicinity (within some 10 km).

4.2 Field survey

Northern Woodlands

Rose Carr

- 4.2.1. Rose Carr occupies land which slopes down towards the north. It is composed of a range of predominantly broad-leaved trees including pedunculate oak *Quercus robur*, beech *Fagus sylvatica*, ash *Fraxinus excelsior*, sweet chestnut *Castanea sativa* and sycamore *Acer pseudoplatanus* on the higher and drier land to the south. Some mature specimens are evident. The lower-lying ground supports species characteristic of damper conditions including alder *Alnus glutinosa* and a poplar cultivar *Populus sp.* The field layer includes bramble *Rubus fruticosus agg.*, dog's mercury *Mercurialis perennis* and ground ivy *Glechoma hederacea*. Common stinging nettle *Urtica dioica* is locally dominant, particularly on the damper ground in the north. There is some large deadwood including fallen trunks as well as smaller woody debris.
- 4.2.2. The range of fungi recorded from Rose Carr reflect the reasonably varied range of habitats present. The large standing and fallen dead wood, for example, supports root and butt rot forming taxa such as *Ganoderma australe* and *Ganoderma applanatum* on beech and white heartwood rotting species such as *Phellinus igniarius* on an unidentified log. Dense clumps of the parasitic honey fungus *Armillaria mellea* were observed on old stumps and other large woody debris throughout the wood and *Pholiota aurivella* on ash. Other species associated with woody debris include *Xylaria longipes*, apparently on decaying sycamore branches and *Trametes versicolor* on fallen logs and branches.
- 4.2.3. Some ectomycorrhizal species were recorded including *Boletus chrysenteron* and saprotrophic species including *Chlorophyllum rachodes* and *Lepiota boudieri*.
- 4.2.4. During the spring survey, additional species recorded from Rose Carr included the ectomycorrhizal *Naucoria striatula* from under *Alder*.

The Nursery

- 4.2.5. The Nursery is a relatively recent conifer plantation (mostly post-dating the 1938 OS 6" map) with extensive sycamore regrowth. Some dead wood is present but is limited to smaller branches.

- 4.2.6. The Nursery is fairly uniform in terms of the habitats and conditions it provides, and the range of fungi recorded was correspondingly limited, with most growing on small woody debris (e.g. *Nectria cinnabarina*) or leaves or saprotrophic on the woodland soil (e.g. *Clitocybe nebularis*).

Spring Hills

- 4.2.7. Only a small part of Spring Hills was examined. It is a deciduous plantation dominated by beech with ash, wild cherry *Prunus avium*, sycamore, elm *Ulmus* re-growth and a mature oak on the north-eastern corner. An old oak stump was evident within the plantation but most of the dead wood resource consists of branches and other small material.
- 4.2.8. The modest range of vascular plant species and habitats within the small portion of Spring Hills that was surveyed appears to have limited the range of fungi in evidence, with species growing on wood (e.g. *Crepidotus cesatii*) primarily being those which may flourish on smaller branches. A range of saprotrophic species was, however, recorded including *Agaricus sylvicola* and *Rhodocollybia butyracea* and ectmycorrhizal species include *Lactarius subdulcis*.

Long Plantation

- 4.2.9. Long Plantation is a mature mixed plantation including pedunculate oak, beech, sweet chestnut, Scots pine *Pinus sylvestris*, the trees being of various ages. The field layer includes bracken *Pteridium aquilinum* and bramble. The southern edge of the plantation is shrubby and includes common hawthorn *Crataegus monogyna* and elm re-growth. The deadwood resource includes stumps, fallen trunks and other large material.
- 4.2.10. The mixture of broad-leaved and coniferous trees and other habitats and features supports a varied range of fungi including species growing on wood such as *Xylaria hypoxylon* and *Trametes versicolor*, those forming ectomycorrhizas such as *Russula ochroleuca*, *Boletus badius* and *Boletus chrysenteron* and saprotrophic species including *Marasmius cohaerens* and *Clitocybe nebularis*. The presence of a shrubby border grading into rough grassland along the southern boundary adds some further variety where species such as *Tubaria dispersa* (associated with hawthorn) and *Geastrum triplex* occur.

Unnamed Woodland (South of Ringland Lane)

- 4.2.11. This small portion of woodland includes pedunculate oak, ash and Scots pine over a field layer dominated by bramble. Shrubs include common hawthorn and spindle *Euonymus europaeus*. Some of the trees are mature but others are much younger and still show evidence of tree guards.
- 4.2.12. The woodland is rather uniform in structure and a modest range of principally saprotrophic species was recorded from it including *Hygrophoropsis aurantiaca* and *Gymnopus dryophilus*.

Triangle woodland at the junction of Breck Road and The Broadway

- 4.2.13. This is a small patch of recent secondary woodland (shown as open on the 1881 OS map but as scrubbing over in 1905 and 1950). Evidently heavily disturbed with extensive areas of common nettle *Urtica dioica*, woody species include elder, sycamore and ash. Only small woody debris is present here.
- 4.2.14. *Piptoporus betulinus* was recorded on a dead birch trunk but no other fungal records were made.

The Broadway Plantation

- 4.2.15. This plantation runs along the southern side of The Broadway. Tree species include Scots pine, pedunculate oak and beech over a field layer dominated by bramble and ivy with other species including bracken, wood sage *Teucrium scorodonia* and honeysuckle *Lonicera periclymenum*. The trees are moderately mature but no veteran specimens were observed. There is plentiful small and medium dead wood and a small amount of larger standing dead wood.
- 4.2.16. *Trametes versicolor* and *Trametes gibbosa* were recorded on dead wood within The Broadway Plantation and *Phallus impudicus* on the ground.

Foxburrow Plantation

- 4.2.17. Foxburrow Plantation contains a range of mature trees including beech, sycamore, pedunculate oak, silver birch and some conifers including European larch. Apart from a few grassy rides, the field layer is dominated by a dense tangle of bramble with other species including bluebell *Hyacinthoides non-scripta*, male fern *Dryopteris filix-mas* and bracken. The plantation contains much small, medium and large deadwood, the latter including fallen trunks and standing trees. Some large old oak stumps were also observed and reflect a past episode of felling. The plantation occupies land sloping down to the south and beyond the fenced plantation boundary lies an area of marshy grassland alongside a stream with lady's smock *Cardamine pratensis*, water mint *Mentha aquatica* and reed sweet-grass *Glyceria maxima* and scattered sallow *Salix cinerea*, alder and birch.
- 4.2.18. The moderate range of habitat types and ecological resources associated with Foxburrow Plantation and the marshy ground to the south would be expected to support a corresponding range of fungi although the range of taxa observed during the spring visit was quite limited. Species include *Coprinus domesticus* on dead sycamore wood, *Piptoporus betulinus* on a fallen dead birch trunk, *Auricularia auricula-judae* on sycamore branches, *Stereum gausapatum* on an oak branch and *Mycena vitilis* amongst beech litter.

Hedgerows

- 4.2.19. The hedgerows along Ringland Lane, Breck Road and the hedgerow north of Weston Road were briefly surveyed specifically for *Battarrea phalloides* although no evidence of this species was found.



During the spring survey, many fruitbodies of *Entoloma clypeatum* f. *clypeatum* were observed beneath hawthorn *Crataegus monogyna* along the hedgerow north of Weston Road and *Volvariella gloiocephala* was recorded from the arable field adjacent to the hedgerow.

Table 4-1 – Survey Results

Species	Location	Location	Location	Location	Location	Location	Location	Location	Location	Notes
Latin Name	Rose Carr	The Nursery	Spring Hills	Long Plantation	Wood south of Ringland Lane	Breck Road / Broadway triangle	The Broadway Plantation	Foxburrow Plantation	Hedgerows	Not Applicable
<i>Agaricus moelleri</i>	✓ (tick)	x (cross)	✓ (tick)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Agaricus sylvaticus</i>	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Agaricus sylvicola</i>	✓ (tick)	✓ (tick)	✓ (tick)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Amanita muscaria</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On ground under Betula
<i>Armillaria mellea</i>	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On stump
<i>Auricularia auricula-judae</i>	x (cross)	✓ (tick)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	On twigs and small woody debris
<i>Baeospora myosura</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On cone (Pinus)
<i>Bolbitius vitellinus</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On decaying grass on woodland edge
<i>Boletus badius</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On ground in woodland
<i>Boletus chrysenteron</i>	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On ground in woodland
<i>Calocera viscosa</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On decaying conifer wood
<i>Chlorophyllum rachodes</i>	✓ (tick)	✓ (tick)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Ciboria batschiana</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On decaying acorn
<i>Clitocybe gibba</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Clitocybe nebularis</i>	✓ (tick)	✓ (tick)	✓ (tick)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Clitocybe phyllophila</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	Amongst woodland debris
<i>Coprinellus disseminatus</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	Amongst moss on decaying bark
<i>Coprinellus micaceus</i>	✓ (tick)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On decaying stumps etc
<i>Coprinus domesticus</i>	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	On dead sycamore wood

Species	Location	Location	Location	Location	Location	Location	Location	Location	Location	Notes
<i>Coprinus lagopus</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Crepidotus cesatii</i>	✓ (tick)	x (cross)	✓ (tick)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On twigs/woody debris
<i>Dacrymyces stillatus</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On decaying wood
<i>Daldinia concentrica</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On Fraxinus branch
<i>Diatrype disciformis</i>	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On dead Fagus branches
<i>Echinoderma asperum</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On soil in woodland
<i>Entoloma clypeatum f clypeatum</i>	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	✓ (tick)	Associated with Crataegus along the hedgerow north of Weston Road and hedgerow at G103521306.
<i>Entoloma sericatum</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On damp ground under Alnus in carr
<i>Ganoderma australe</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On Fagus stump
<i>Geastrum triplex</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	By woodland margin
<i>Gymnopilus penetrans</i>	x (cross)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On decaying conifer wood
<i>Gymnopus androsaceus</i>	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On twigs
<i>Gymnopus dryophilus</i>	✓ (tick)	x (cross)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Hygrophoropsis aurantiaca</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil under conifers
<i>Hypholoma fasciculare</i>	x (cross)	x (cross)	✓ (tick)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On decaying stumps
<i>Hypoxyylon fragiforme</i>	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On Fagus bark
<i>Kretzschmaria deusta</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On Fagus bark
<i>Lactarius subdulcis</i>	x (cross)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil under Fagus
<i>Lepiota boudieri</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On damp soil under Alnus

Species	Location	Location	Location	Location	Location	Location	Location	Location	Location	Notes
<i>Lepiota cristata</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Lepista flaccida</i>	✓ (tick)	✓ (tick)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Lycoperdon nigrescens</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Lycoperdon perlatum</i>	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Lycoperdon pyriforme</i>	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On decaying log
<i>Marasmius cohaerens</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On soil under Fagus
<i>Marasmius oreades</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	In open grassy woodland areas
<i>Melanoleuca grammopodia</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	Amongst woodland debris
<i>Melanoleuca sp</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On soil under Fagus
<i>Mycena abramsii</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On decaying wood (? Fagus)
<i>Mycena arcangeliana</i>	x (cross)	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On woody debris
<i>Mycena filopes</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On woody debris
<i>Mycena galopus</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On woody debris
<i>Mycena hiemalis</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	Amongst mosses on bark
<i>Mycena rosea</i>	✓ (tick)	✓ (tick)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil under Fagus
<i>Mycena vitilis</i>	x (cross)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	On woody debris
<i>Naucoria striatula</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	Under Alnus
<i>Nectria cinnabarina</i>	✓ (tick)	✓ (tick)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On dead branches
<i>Parasola conopilea</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On Fagus log
<i>Parasola plicatilis</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Phallus impudicus</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	On woodland soil
<i>Phellinus igniarius</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On unidentified log

Species	Location	Location	Location	Location	Location	Location	Location	Location	Location	Notes
<i>Pholiota aurivella</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	Separate fruitbodies on Fraxinus tree ca. 1.5 – 2 m above ground
<i>Phragmidium violaceum</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On Rubus fruticosus agg
<i>Piptoporus betulinus</i>	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	✓ (tick)	x (cross)	On silver birch
<i>Pluteus cervinus</i>	x (cross)	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	At base of Prunus avium
<i>Postia caesia</i>	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On decaying conifer wood
<i>Psathyrella piluliformis</i>	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On moss on fallen Populus trunk
<i>Psathyrella spadiceogrisea</i>	x (cross)	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland path
<i>Rhodocollybia butyracea</i>	x (cross)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Rhytisma acerinum</i>	x (cross)	✓ (tick)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On sycamore leaves
<i>Russula ochroleuca</i>	x (cross)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On woodland soil
<i>Russula sp</i>	x (cross)	x (cross)	✓ (tick)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	Too badly decayed to permit identification
<i>Skeletocutis nivea</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On dead wood
<i>Stereum gausapatum</i>	x (cross)	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	On Quercus branch
<i>Stereum hirsutum</i>	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On decaying wood
<i>Stropharia caerulea</i>	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	In leaf litter and amongst grass in more open woodland areas
<i>Trametes gibbosa</i>	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	Recorded on dead wood
<i>Trametes versicolor</i>	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	On dead wood.
<i>Tremella mesenterica</i>	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	On dead branch
<i>Tubaria dispersa</i>	x (cross)	x (cross)	x (cross)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	On soil under Crataegus

Species	Location	Location	Location	Location	Location	Location	Location	Location	Location	Notes
<i>Tubaria furfuracea</i>	✓ (tick)	x (cross)	x (cross)	✓ (tick)	✓ (tick)	x (cross)	x (cross)	x (cross)	x (cross)	On woody debris
<i>Volvariella gloiocephala</i>	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	x (cross)	✓ (tick)	In arable field adjacent to the hedgerow north of Weston Road

5 Discussion

5.1 Summary

- 5.1.1. In terms of its mycological interest, The Nursery is considered to be of negligible ecological importance. It is a relatively recent feature with low vascular plant diversity and dominated by non-native trees. The fungi associated with The Nursery are correspondingly limited in their diversity.
- 5.1.2. The other woodlands and plantation areas are regarded as being of local ecological importance since they appreciably enrich the local resource but no rare or protected fungi were recorded from any of these wooded areas and only one species (*Mycena abramsii*) appears not to have been previously recorded from Norfolk. This species is small and nondescript, requiring microscopic examination to determine its identity so is therefore likely to be often overlooked. It is described by Legon and Henrici (2005) as 'rarely reported but apparently widespread'.
- 5.1.3. Within the context of the locality, the greatest fungal diversity appears to be associated with Rose Carr on account of the variety of habitats present, although Long Plantation also supports a moderately diverse range of species. Foxburrow Plantation with the associated marshy ground to the south is likely to support a more varied range of species than was observed during the spring survey on account of the range of habitats and tree species present. Only a small part of Spring Hills falls within the survey area and most of this appears to be of fairly recently planted origin. The Unnamed Woodland (South of Ringland Lane) also contains recent planting and these latter sites appear to be of somewhat lower value in the local context.
- 5.1.4. No evidence of *Battarrea phalloides* was found in any of the hedgerows, although some are considered to be potentially suitable locations for this species, notably the hedgerow alongside Ringland Lane and the hedgerow north of Weston Road which both support sandy ground. On the basis of the present survey, however, they are judged to be of no more than local mycological interest.

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Appendix A – Fungal Study Area



Appendix B – Fungal Survey Area



THIS DRAWING MAY BE USED ONLY FOR THE PURPOSE INTENDED AND ONLY WRITTEN DIMENSIONS SHALL BE USED

Legend

- Scheme boundary
- Woodland
- Hedgerow

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Rev	By	Rev	Date

Revision Details

Drawing Status: **FINAL**

Job Title: **Norfolk County Council
Norwich Western Link**

Drawing Title: **Fungal Survey Area**

Scale at A1: **1:8,000**

Drawn: UKR/EGOS

Stage 1 Check	Stage 2 Check	Digitized	Date
RIG	KF	RE	20/10/2022

0 0.3 0.6 km

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