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Going wild on woodchips: the alien wrinkled fieldcap mushroom *Agrocybe rivulosa* in Glasgow, Scotland

M. O'Reilly

Scottish Environment Protection Agency, Angus Smith Building, 6 Parklands Avenue, Maxim Park, Eurocentral, Holytown, North Lanarkshire ML1 4WQ

E-mail: myles.oreilly@sepa.org.uk

Unusual fungi from woodchipped beds have recently been highlighted in one of a series of notes on interesting fungi found around the Glasgow area (see O'Reilly, 2025, for full citations). Further information is provided here on unusual alien fungi, which, along with a few native species, appear to be taking advantage of the widespread use of woodchips and "going wild" in mulched beds in Scotland's parks and gardens.

The use of woodchip mulch has greatly increased within horticulture in recent decades in the U.K. Woodchips, a waste product of the forestry industry, have proved very useful as weed suppressants in shrubberies or flower beds. According to Shaw & Kibby (2001), woodchipped beds effectively present a qualitatively new habitat type for fungi, due to the physical structure of the woodchip layering in combination with whatever management or replenishment regime is practiced by the gardeners. This new habitat may be open to colonisation by both native fungi and exotic alien species. The fungi from ornamental woodchipped beds in the U.K. have been investigated by Shaw & Kibby (2001) and Shaw *et al*. (2004) who found nearly 50 different species.

They highlighted two alien agarics as epitomising woodchip fungal communities in south-east England: wavy cap, *Psilocybe cyanescens*, probably native to the U.S.A., and redlead roundhead, *Stropharia aurantiaca* (*sensu auct.*) which possibly came from Australia (Fig. 1). Both species may form dense aggregations, and the latter, with bright orange caps, is described as one "of the few fungi that can be identified from a moving car"! Note that there has been considerable nomenclatural confusion around this latter species, and it is now properly known as *Leratiomyces ceres* (see: Fortey, 2004; Bridge *et al*., 2008).

Another alien woodchip mushroom highlighted by Shaw & Kibby (2001) is the mulch fieldcap, *Agrocybe putaminum,* which was originally described from a garden in France in 1913 and subsequently spread elsewhere in western Europe on mulched beds. It first

Fig. 1. Redlead roundhead (*Leratiomyces ceres*), Maxim Business Park, Eurocentral, North Lanarkshire, Scotland, October 2022. (Photo: M. O'Reilly)

turned up in the U.K. at Kew Gardens in 1986 (Pegler & Legon, 1998) and it has now been reported in 11 European countries (Halama, 2016).

In 1999 an unrecognised *Agrocybe* species was found in large numbers on a woodchip heap in Rotterdam and soon appeared elsewhere in the Netherlands and nearby in Luxembourg, also on woodchip heaps. It was subsequently determined as a species new to science, *Agrocybe rivulosa*, and a full description with a line-drawing figure was published (Nauta, 2003). The new species, *A. rivulosa*, was readily distinguished by the presence of a stipe ring, its relatively large spores, and the distinct radially rivulose wrinkles on its cap – hence its specific name. Surprisingly, Nauta (2003) did not speculate on the natural origin of *A. rivulosa* but did provide a key to six similar *Agrocybe* species then known from woodchips in north-western Europe.

Within a few years *A. rivulosa* had spread to Belgium, Denmark and England (Vellinga, 2008). It was first recorded in England on a woodchip pile in Staffordshire in 2004 (Lovett, 2006). As this woodchip pile had been produced on site from an overgrown hedge, Lovett suggested that *A. rivulosa* must have arrived in England by atmospheric circulation of spores (presumably from continental Europe), rather than commercial transport of woodchips. She also speculated that it was probably a thermophilic species utilising warm, decaying woodchips and that it may have originated from tropical or subtropical climes.

A. rivulosa is now widespread in the U.K., where the vernacular name, wrinkled fieldcap, has been adopted. It was first recorded in Scotland in 2006 (FRDBI, 2026) and reached Northern Ireland in the following year (Anderson, 2010). There are now a couple of hundred

records throughout England and Wales, though still only around a couple of dozen sites for Scotland (FRDBI, 2026).

In August 2012, the author noticed a mass of mushrooms sprouting from a large pile of woodchips at the edge of the allotments in Eastwood Park, Giffnock, Glasgow (NS55445458697). There were around 200 fruiting bodies growing on the mound of woodchips ranging from fleshy erupting specimens, mature examples, and shrivelled decaying specimens (Fig. 2A). The mature specimens were up to about 10 cm tall with caps similarly wide of a yellow-brown colour in the middle but paler and wrinkled towards the rim, and initially with a distinct ring on the stipe (Fig. 2B). They were identified as *A. rivulosa* from the photographic guide to British mushrooms by Sterry & Hughes (2009), which included a short section on woodchip fungi. These authors suggested that *A. rivulosa* had already spread to "almost every county" since its arrival in the British Isles in 2004. A look at its distribution on the Fungal Records Database of Britain and Ireland (FRDBI, 2026) indicates this is somewhat exaggerated.

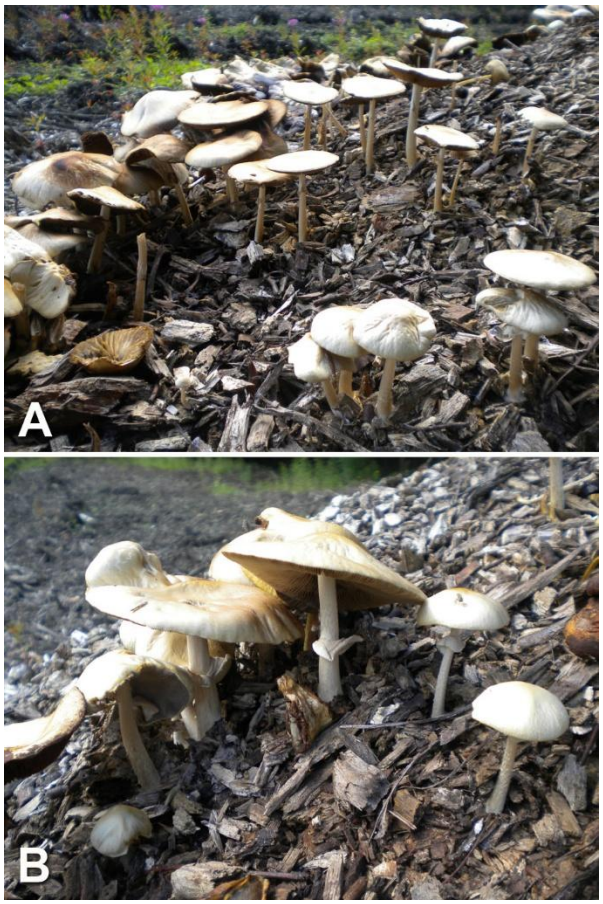

Fig. 2. Wrinkled fieldcap (*Agrocybe rivulosa*), Eastwood Park, Giffnock, Glasgow, Scotland, August 2012. (Photos: M. O'Reilly)

The Eastwood Park 2012 record of *A. rivulosa* was submitted to the FRDBI which now holds half a dozen other records of this alien species from the Glasgow area. The first record was from Hyndland in August 2011, and subsequent records were from Kelvingrove Park, May 2014; Milngavie, July 2016; Bull Wood, September 2018; Dalbeth, September 2019; and Bellahouston in June 2023 (FRDBI, 2026).

In August 2023 the author found other specimens of *A. rivulosa* growing on a large pile of woodchips on a vacant overgrown plot of land at the southern end of Belmont Drive, Giffnock, Glasgow (NS5586259055). The new find was not as spectacular as the previous Giffnock find in 2012 and initially comprised just six specimens found on 10th August (Fig. 3A,B). The woodchip pile was repeatedly visited right through into October, during which time new fruiting bodies constantly sprouted but were rapidly grazed away by slugs. They reached a peak of 52 fruiting bodies on 14th September, and the last 13 fruiting bodies were seen on 13th October.

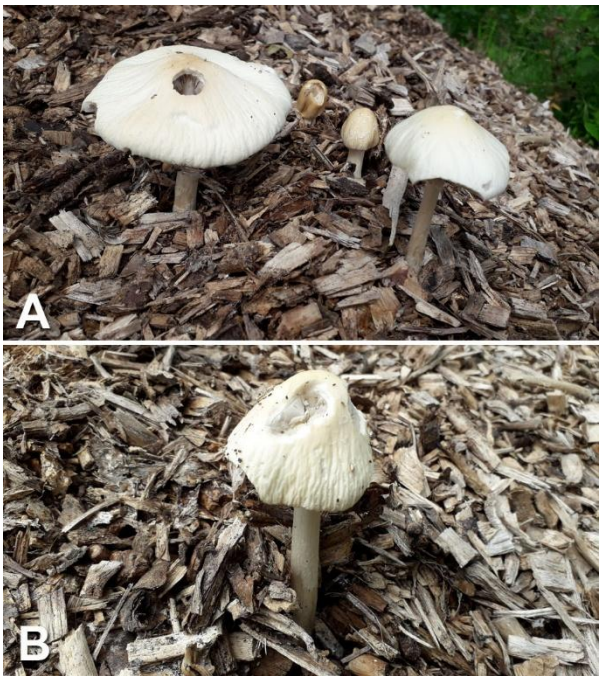

Fig. 3. Wrinkled fieldcap (*Agrocybe rivulosa*), Belmont Drive, Giffnock, Glasgow, Scotland, August 2023. (Photos: M. O'Reilly)

No other fungi appeared on the woodchips, but several large slime mould fruiting bodies were seen erupting and "going wild" on the woodchip mound, with one of the slime moulds partly engulfing an emerging *A. rivulosa* specimen (Fig. 4A). The slime moulds were 20-30 cm in diameter and appeared to be varieties of the dog's vomit slime-mould, *Fuligo septica* (Fig. 4B,C). One of the slime moulds had a distinct yellow colouration suggesting *F. septica* var. *flava* (Fig. 5A,B). On maturing, the slime mould bodies blackened and clouds of spores could be seen wafting from them on the breeze. Although not fungi, a few common slime mould species are illustrated in Sterry & Hughes (2009). Nearly one hundred U.K. species are figured in recent guides by Holden (2021, 2025).

Of the three alien fungi cited by Shaw & Kibby (2001) as typical wood chip colonisers in England, only the

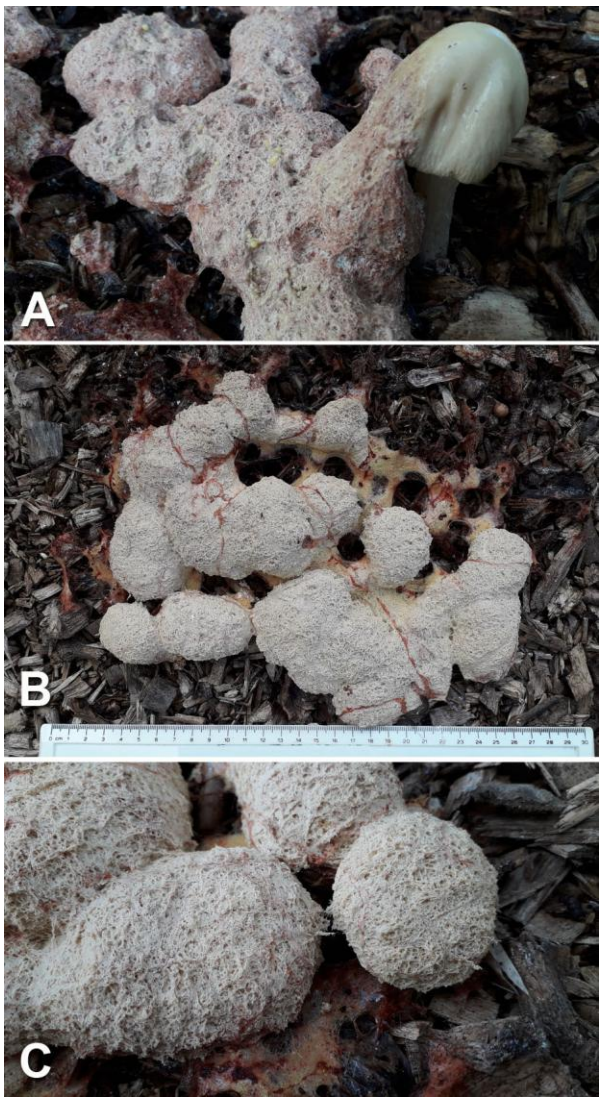

Fig. 4. Dog's vomit slime mould (*Fuligo septica*), Belmont Drive, Giffnock, Glasgow, Scotland, August 2023. (A) Spreading over a specimen of wrinkled fieldcap (*Agrocybe rivulosa*). (B) Another specimen of *F. septica*. (C) Closer view of *F. septica* specimen in (B). (Photos: M. O'Reilly)

redlead roundhead, *Leratiomyces ceres*, is established in Scotland with about 20 records (FRDBI, 2026). Both the wavy cap (also called "blueleg brownie") *Psilocybe cyanesens* and the mulch fieldcap *Agrocybe putaminum* are now widespread in England, but have only rarely been recorded in Scotland. There are just two Scottish records of the former - from Glasgow, 2014 and Argyll, 2017 - and a single record of the latter from Bishopton in 2022 (FRDBI, 2026).

The exact origin of these alien fungi found in the wild remains uncertain and these species are best regarded as cryptogenic (i.e. of obscure or uncertain origin). Although North America was suggested as the natural source of *A. putaminum* (Shaw & Kibby, 2001; Kibby, 2011), some doubt has been cast on this as the first confirmed records from that continent were from non-natural woodchip beds, and date from only the early 2000s (Vellinga, 2008; Halama, 2016). The natural origin of *A. rivulosa* is still completely unknown. Its first discovery in a major European port suggests the

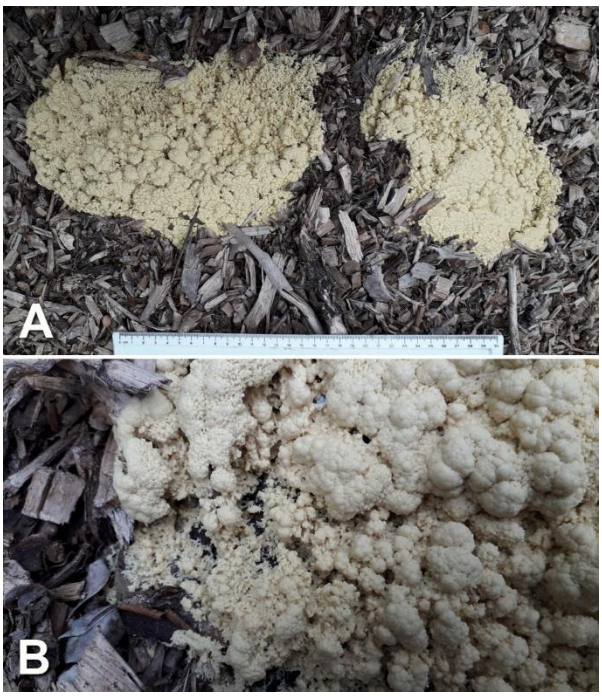

Fig. 5. Yellow dog's vomit slime mould (*Fuligo septica* var. *flava*), Belmont Drive, Giffnock, Glasgow, Scotland, August 2023. (A) General view. (B) Closer view of same specimen. (Photos: M. O'Reilly)

possibility that it came by ship to Europe, but where its voyage began is still unknown (Vellinga, 2008).

Woodchips are the fast food of the fungal world (Vellinga, 2008). It is evident that their prevalence presents new opportunities for fungi. This could include native species such as the cucumber cap *Macrocystidia cucumis* (Fig. 6), formerly rare but now extremely common on woodchip, including around Glasgow (Kibby, 2011). Other notable native colonisers of woodchip beds in or around the Glasgow area have included dense stands of upright coral fungi, *Ramaria stricta* (see O'Reilly, 2019), as well as yellow fieldcap *Bolbitius titubans* (Fig. 7) and two species of bird's nest fungi (O'Reilly, 2025).

Fig. 6. Cucumber cap (*Macrocystidia cucumis*), Strathblane Parish Church graveyard, Stirlingshire, Scotland, October 2022. (Photo: M. O'Reilly)

It is the occurrence of previously scarce native fungi, alien fungi, and potentially completely new species of fungi that makes fungal forays in beds of mulch and

Fig. 7. Yellow fieldcap (*Bolbitius titubans*), Maxim Business Park, Eurocentral, North Lanarkshire, Scotland, November 2021. (Photo: M. O'Reilly)

woodchip so fascinating. An unpublished compilation of woodchip fungi at Kew Gardens now includes nearly 250 species (Bridge *et al*., 2008). Although the fungi of Glasgow's parks and public gardens were studied some time ago (Marshall, 1979), the new practices of mulching raise the prospect of new and interesting discoveries. It is hoped this note will encourage local naturalists to take a closer look at whatever fungal species are popping up and going wild on mulched border beds.

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