

<https://doi.org/10.37208/tgn27416>

The stinkhorn *Phallus impudicus* and the dog stinkhorn *Mutinus caninus* from around the Glasgow area, Scotland

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Over the last ten years the Clyde & Argyll Fungus Group (CAFG) has carried out numerous fungus forays including many in and around the Glasgow area. Records from these forays are submitted to the Fungal Records Database of Britain and Ireland (FRDBI) and subsequently to the National Biodiversity Network database (NBN). Those from the Glasgow area are copied to the Glasgow Museums Biological Records Centre (GMBRC). Notes on some of the more interesting fungal finds around Glasgow have been published in recent issues of *The Glasgow Naturalist* (McInerny, 2019; O'Reilly, 2018, 2019, 2020; O'Reilly & Mitchell, 2019). This note adds to these in relation to the stinkhorn family, Phallaceae, an unusual group of gasteromycete fungi with two representatives known in the Glasgow area.

The common stinkhorn (*Phallus impudicus*) is very distinctive with its phallic shape and nauseous odour (Fig. 1). It initially appears as a white egg-shaped fruit body, about 5 cm in diameter, with cord-like mycelial rootlets from which a hollow spongy stem erupts and extends rapidly to around 15-20 cm in height. The stem is surmounted by a honeycombed cap covered in an olive-coloured glutinous spore mass with an unpleasant sewage smell (Watling, 1973; Pegler *et al.*, 1995; O'Reilly, 2011). The slimy spore mass is especially attractive to flies (Diptera) which consequently crawl all over it (Fig. 1) and subsequently disperse the spores.

The common stinkhorn occurs in soil in woodlands, parks and gardens, associated with both broad-leaved and coniferous trees. It usually appears singly, standing erect (hence its binomial Latin name) but occasionally occurs in small groups. It is fairly common and widely distributed in Scotland, though it seems to be absent from some of the western and northern islands (NBN, 2022). There is also an unusual variety (*P. impudicus* var. *togatus*) which sports a short lacy skirt below the head, but this is very rare with only a single Scottish record, near Loch Lubnaig, Perthshire in 1987 (NBN, 2022).

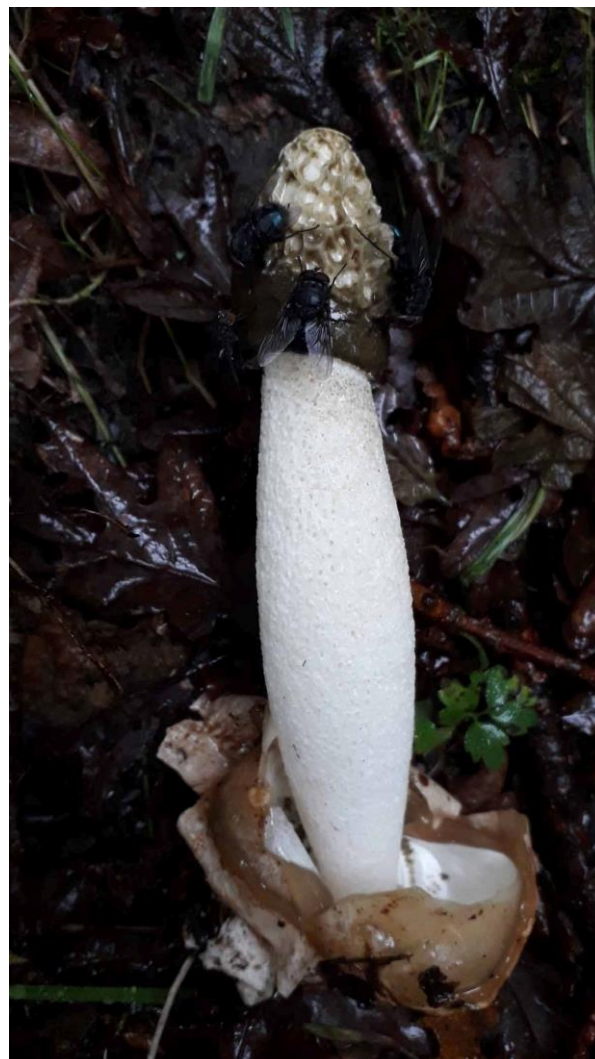


Fig. 1. An uprooted common stinkhorn (*Phallus impudicus*) with attendant blue bottle flies (*Calliphora vomitoria*). Rossthdu, Loch Lomond, Scotland, October 2021. (Photo: M. O'Reilly)

A survey of the fungi of Glasgow Parks was published just over 40 years ago (Marshall, 1979) and, although no stinkhorns were found during the survey, it was stated that common stinkhorns were known from the Pollok, Linn, and Dawsholm Parks. The author has unpublished records from around the same time in Pollok Park (North Wood) in September 1978 and August 1979. A detailed inventory of common stinkhorn records in and around Glasgow is now available from the GMBRC, and a summary of those since the year 2000 is provided in Table 1. It is evident that common stinkhorns are widespread throughout the area and still occur in Pollok, Linn, and Dawsholm Parks with records also in the country parks at Dams to Darnley, Cathkin Braes, Calderglen and Chatelherault. There are also recent findings in and around Glasgow at Garscube, Dalmarnock, Bothwell, Bishopton, Milngavie, Lennoxton and further afield at Drymen, Helensburgh, and New Lanark.

Year	Area	Location	Grid Reference
2000	Neilston	Glanderston Wood	NS496565
2000	Old Kilpatrick	The Saltings	NS464727
2000	Uplawmoor	Uplawmoor Wood	NS439557
2000	Dumbarton	Whiteley Wood	NS383767
2006	Hamilton	Chatelherault CP	NS743530
2006	Glasgow	Dams to Darnley CP	NS522583
2007	Glasgow	Cathkin Braes CP	NS610585
2008	Hamilton	Chatelherault CP	NS7353
2008	Glasgow	Pollok CP	NS557619
2008	Glasgow	Pollok CP	NS553625
2008	Glasgow	Pollok CP	NS553622
2009	East Kilbride	Calderglen CP	NS6498652591
2009	Glasgow	Pollok CP	NS551618
2011	Glasgow	Linn Park	NS58465895
2013	Bothwell	Bothwell Castle Woodlands	NS68895956
2013	Drymen	Buchanan Estate	NS45858884
2013	East Kilbride	Calderglen CP	NS65045275
2013	Hamilton	Chatelherault CP	NS7353
2013	Helensburgh	Duchess Wood	NS28718384
2013	Bishopton	Formakin Estate	NS41077089
2013	Lennoxton	Woodhead Estate	NS60967853
2013	Lennoxton	Woodhead Estate	NS61217855
2014	Glasgow	Garscube Estate	NS553702
2015	Glasgow	Dawsholm Park	NS553696
2015	Glasgow	Clyde Walkway, Dalmarnock	NS6154662653
2017	New Lanark	Falls of Clyde SWT Reserve	NS8820540978
2018	New Lanark	Falls of Clyde SWT Reserve	NS88264075
2020	Milngavie	Dougalston	NS56627416

Table 1. Common stinkhorn (*Phallus impudicus*) records, 2000 to 2020, from the Glasgow Museums Biological Records Centre (GMBRC). CP, Country Park; SWT, Scottish Wildlife Trust.

The dog stinkhorn (*Mutinus caninus*) is similar to the common stinkhorn but is more slender and smaller, attaining a length of 10-12 cm (Figs. 2-4). The stem and especially the head have a pale orange-red colouration and the smell from the spore mass is said to be faint. It usually occurs in small groups with the stems at various angles and often drooping or prostrated. The dog stinkhorn occurs in similar habitats to the common stinkhorn and has a similar distribution throughout Scotland but is very much scarcer. The NBN Atlas shows only a few old records from around Glasgow: near Cumbernauld, Milngavie, and Hamilton (NBN Atlas, 2022). The GMBRC database also holds only a few records which are from other sites: Cardonald, Chatelherault, and Rouken Glen. There are also a couple of old records from Balloch and Paisley Glen on the FRDBI database along with more recent finds at Kilmahew Estate, Cardross in 2017 (Fig. 2) and at Cawder Wood, Bishopbriggs in 2018 (FRDBI, 2022). To these records can be added a further group of around a dozen found under conifers by Laura Allen at Chatelherault (NS742526) on 4th October 2020 (Fig. 3). These various dog stinkhorn records around Glasgow are summarised in Table 2.

The dog stinkhorns found by the author at Rouken Glen in October 2011 comprised a group of about 20 specimens under a large yew tree about 100 m north of the boating pond (Fig. 4A). A single specimen appeared at the same spot one year later, in October 2012, but no further specimens have been observed

there since. The stems of the Rouken Glen specimens were a strong yellow colour with the tip, beneath the spore mass, being distinctly orange (Fig. 4B). The stems of the Kilmahew and Chatelherault specimens were a pale cream colour and the tips a deep orange with dark brown spore masses (Figs. 2 and 3).

While the presence of common stinkhorns can often be detected initially by their smell, finding dog stinkhorns is more challenging due to their fainter smell and smaller size, and so it is possible that many occurrences of the latter go unnoticed. Other types of stinkhorn should also be watched out for in Scotland. The sand stinkhorn (*P. hadriani*) occurs in sandy soils, including sand dunes and is known from just a handful of Scottish sites in eastern Scotland and near the Borders (NBN, 2022). It is very similar to the common stinkhorn but the “egg” develops a distinct pinkish hue and the spore mass initially smells of violets. It was one of the first recognisable fungal species described with the original account and illustration by the Dutch botanist Hadrianus Junius in 1564, from specimens found on sand-dunes in the Netherlands (see Ramsbottom, 1977). Ravenel’s red stinkhorn (*M. ravenelii*) is very similar to the dog stinkhorn but has a carmine red tip and a strong foetid smell. However, it appears to be very rare in the U.K. with the NBN Atlas showing only three U.K. locations: a couple near London and one near Manchester (NBN, 2022).



Fig. 2. A group of dog stinkhorns (*Mutinus caninus*). Kilmahew Estate, Cardross, Dunbartonshire, Scotland, October 2017. (Photo: M. O'Reilly)



Fig. 3. A group of dog stinkhorns (*Mutinus caninus*). Chatelherault, Hamilton, Lanarkshire, Scotland, October 2020. (Photo: L. Allen)



Fig. 4. Dog stinkhorns (*Mutinus caninus*). Rouken Glen, Glasgow, Scotland, October 2011. (A) Group. (B) Single specimen. (Photos: M. O'Reilly)

Year	Area	Location	Source
1876	Lanarkshire	Near what is now Cumbernauld	NBN Atlas
1900	Glasgow	Craigton Wood*	GMBRC
1901	Glasgow	Milngavie	NBN Atlas
1980	Loch Lomond	Balloch	FRDBI
1985	Paisley	Paisley Glen	FRDBI
2001	Hamilton	Baron's Haugh	NBN Atlas
2008	Hamilton	Chatelherault CP	GMBRC
2011	Glasgow	Rouken Glen	GMBRC
2012	Glasgow	Rouken Glen	MO'R
2017	Cardross	Kilmahew Estate	FRDBI
2018	Glasgow	Cawder Wood, Bishopbriggs	FRDBI
2020	Hamilton	Chatelherault CP	This Note

Table 2 – Dog stinkhorn (*Mutinus caninus*) records from around the Glasgow area. *This is now Cardonald Cemetery. CP, Country Park.

Other more exotic members of the Phallaceae are illustrated in Buczacki *et al.* (2012). The red cage fungus (*Clathrus ruber*) is considered as native to southern Europe, and possibly a rare native to Britain. It has been widely recorded in southern England and has also been found near Dunbar, East Lothian, in 1881, Kilmelford, Argyll, in 1917, and near Dundee in 1979 (Ramsbottom, 1977; NBN, 2022). Similarly,

devil's fingers, or octopus stinkhorn, (*C. archeri*) a probable introduction from Australasia, has become widespread in southern England and Wales and also now occurs in the Isle of Man and Northern Ireland, so may well be found in Scotland. It has a 4 cm whitish fruit body with four to seven pink tentacle-like arching arms about 7 cm long (Fig. 5A,B).



Fig. 5. Octopus stinkhorn (*Clathrus archeri*). (A) Uzerche, France, August 1980. (B) Groombridge, East Sussex, England, August 2020. (Photos: M. O'Reilly (A) & Tim Clark (B))

Thanks are due to Richard Weddle for providing GMBRC records, Dick Peebles for leading the CAGF forays, Laura Allen for providing the 2020 record and photos of dog stinkhorns from Chatelherault, and Tim Clark for the octopus stinkhorn photo from East Sussex.

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