Records of coprophilous fungi – a data set

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ABSTRACT — Many coprophilous fungi are adapted to their habitat by having specialised spore dispersal mechanisms to improve the chance of the spores being consumed, since they require passage through an animal's gut to encourage their germination. Analysis of coprophilous fungus records allows a study of regional, substrate, and seasonal differences, and has demonstrated that fungi increase in biodiversity with decreasing latitude. 1386 samples of dung, mainly of herbivorous mammals and birds, were collected, mostly between 1994 and 2014, from the wild from various parts of the world. Most (88%) were from north temperate areas, with 7% from south temperate areas, 4% from the tropics, and 0.3% from the Arctic. Over 12,300 records of coprophilous fungi were obtained from these samples on incubation in damp chambers. Details of the fungi found and their origin are presented as files that provide a data set that triples the amount of data used in a 2001 analysis. The data set includes collection details for the samples (locality, country, latitude/longitude coordinates, elevation), date of collection, dung type, species recorded from each sample, location of herbarium deposits, and citations to references where the records have been published. Notes of observations made on each sample during incubation [one pdf for each sample] are also in the on-line checklist, with pdfs of publications in which the records are cited.

KEY WORDS — distribution, diversity, dung fungi, substrate preference, worldwide

Introduction

Coprophilous fungi are suitable subjects for many studies of distribution and diversity; their substrate is abundant and widespread, and readily collectable for drying and return to the laboratory for rehydration and incubation in damp chambers. They are adapted to their habitat by having specialised spore dispersal mechanisms to improve the chance of the spores being consumed, since they require passage through an animal's gut to encourage their germination. These adaptations include positive phototropism of sporophores; ballistic spore discharge around midday to better get spores into the airstream; gelatinous appendages to allow them to adhere to vegetation; and spore pigmentation to protect from UV damage while exposed. Analysis of coprophilous fungus records have allowed regional, substrate and seasonal differences in the occurrence of this specialist group of fungi to be studied, and have demonstrated that the increase in biodiversity with decreasing latitude, well known for other organisms, also applies to fungi (Richardson 2001). 1386 samples of dung, mainly of herbivorous mammals and birds, were collected, mostly between 1994 and 2014, from the wild from various parts of the world. Caution is needed when interpreting the results of limited collections made *en passant*, since it is well known that observations from such collections cannot replace an intensive and comprehensive study of collections made over a period of time from a locality. Similarly, interactions among competing fungi and other biota could well influence which fungi actually fruit when samples are incubated. It is hoped,

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however, that the records from these collections will contribute to our knowledge of the distribution and occurrence of coprophilous fungi. The now relatively aged monographs of many of the common coprophilous genera, while still invaluable, are much in need of revision and updating to facilitate these studies. A summary of the geographical origin of the samples that provided the records is given in Table 1. Over 12300 records of coprophilous fungi were obtained from these samples on incubation in damp chambers. Details of the fungi found and their origin are presented as files in the on-line version of this paper. The files provide a data set that triples the amount of data used in the earlier analysis (Richardson 2001). The data set includes collection details for the samples (locality, country, latitude/longitude coordinates, elevation), date of collection, dung type, species recorded from each sample, location of herbarium deposits and citations to references where the records have been published. Notes of observations made on each sample during incubation [one pdf for each sample] are also in the on-line version, with pdfs of publications in which the records are cited.

TABLE 1. Summary of data

STATES	NO. OF SAMPLES	NO. OF RECORDS	NO. OF SPECIES (APPROX.)*
Australia	46	545	146
British Overseas Territory†	9	72	39
Brazil	7	75	32
Canada	11	50	33
Chile	2	14	11
Costa Rica	3	26	20
Dominica	4	40	28
Egypt	1	7	7
Falkland Islands	39	215	73
Faeroe Islands	20	233	59
Finland	30	199	78
France§	101	978	182
Great Britain [inc. Isle of Man]	831	7582	317
Greece	43	344	79
Greenland	1	1χ	0
Iceland	76	671	115
Eire	5	44	31
Italy	11	133	75
Malaysia	1	16	16
Morocco	14	167	57
Netherlands Antilles	12	98	37
New Zealand	1	1	1
Norway	3	24	20
Papua New Guinea	2	4	4
Puerto Rico	5	45	26
Spain	24	221	93
St Lucia	5	52	29
Sweden	19	110	37
Tunisia	4	21	16
US Virgin Islands	2	16	14
USA	51	319	128
TOTAL	**1383**	**12323**	**566**

* excluding potential duplicates of identifications such as cf., aff., sp., ?, etc., to prevent double counting.

†Ascension Island and St Helena. § including Corsica, Guadeloupe and the Kerguelen Islands.

χ null record from the single Greenland sample.

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