

Appendix Table S1. Results of the identifier using characters from Character Group 7 and standard parameters as in Table 3. For each species, the number of collections that were identified correctly in the identifiers top 5 ‘guesses’ are shown. If a species had any incorrect guesses (i.e. any guess that was not Top 1, then the top guess of the identifier is shown in the ‘Confused as’ column. Species shown in bold in the ‘Confused as’ column are from the same (sub)-section. Species not shown in bold are from different (sub)-sections.

<i>Adherentia</i>	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. adherens</i>	1	0	0	0	1	0	25	<i>H. radicosum</i> (1)
Total	1	0 (0%)	0 (0%)	0 (0%)	1 (100%)	0 (0%)	25	
‘Australe’	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. australe</i>	6	6	0	0	0	0	100	
Total	6	6 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	100	
<i>Denudata-Clepsydroida</i>	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. album</i>	11	4	4	2	1	0	62	<i>H. lutense</i> (1), <i>H. cavipes</i> (1), <i>H. hiemale</i> (1), <i>H. ingratum</i> (1), <i>H. limbatum</i> (1), <i>H. sordidulum</i> (1), <i>H. vaccinum</i> (1)
<i>H. ammophilum</i>	2	1	0	1	0	0	66	<i>H. velutipes</i> (1)
<i>H. asperosporum</i>	1	1	0	0	0	0	100	
<i>H. cavipes</i>	17	13	2	2	0	0	86	<i>H. limbatum</i> (1), <i>H. album</i> (1), <i>H. sordidulum</i> (1), <i>H. ingratum</i> (1)
<i>H. cinnamomeum</i>	3	1	2	0	0	0	66	<i>H. cavipes</i> (1), <i>H. hiemale</i> (1)
<i>H. ingratum</i>	4	2	1	0	1	0	68	<i>H. pseudofragilipes</i> (1), <i>H. album</i> (1)
<i>H. limbatum</i>	3	1	1	0	0	1	56	<i>H. celatum</i> (1), <i>H. pseudofragilipes</i> (1)
<i>H. matritense</i>	1	0	0	0	1	0	25	<i>H. ammophilum</i> (1)
<i>H. pseudofragilipes</i>	12	6	2	1	0	1	64	<i>H. cavipes</i> (3), <i>H. album</i> (1), <i>H. ingratum</i> (1), <i>H. hiemale</i> (1)
<i>H. sordidulum</i>	12	12	0	0	0	0	100	
<i>H. vaccinum</i>	11	10	1	0	0	0	95	<i>H. pusillum</i> (1)
Total	77	51 (66%)	13 (17%)	6 (8%)	3 (4%)	2 (3%)	78	

Denudata-Crustuliniformia	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. aanenii</i>	12	7	5	0	0	0	79	<i>H. geminatum</i> (5)
<i>H. alpinum</i>	24	19	3	1	0	0	87	<i>H. eburneum</i> (2), <i>H. hiemale</i> (2), <i>H. crustuliniforme</i> (1)
<i>H. arcticum</i>	3	3	0	0	0	0	100	
<i>H. aurantioumbrinum</i>	5	4	1	0	0	0	90	<i>H. hiemale</i> (1)
<i>H. bellotianum</i>	0	0	0	0	0	0	-	
<i>H. crustuliniforme</i>	8	5	2	0	1	0	78	<i>H. eburneum</i> (2), <i>H. aanenii</i> (1)
<i>H. eburneum</i>	27	21	4	2	0	0	87	<i>H. alpinum</i> (3), <i>H. album</i> (1), <i>H. lutense</i> (1), <i>H. luteicystidiatum</i> (1)
<i>H. geminatum</i>	9	8	1	0	0	0	94	<i>H. aanenii</i> (1)
<i>H. helodes</i>	10	10	0	0	0	0	100	
<i>H. louiseae</i>	2	1	0	1	0	0	66	<i>H. aurantioumbrinum</i> (1)
<i>H. luteicystidiatum</i>	1	0	0	1	0	0	33	<i>H. louiseae</i> (1)
<i>H. lutense</i>	5	5	0	0	0	0	100	
<i>H. magnicystidiatum</i>	0	0	0	0	0	0	-	
<i>H. minus</i>	6	5	1	0	0	0	91	<i>H. pusillum</i> (1)
<i>H. pallidolabiatum</i>	2	2	0	0	0	0	100	
<i>H. perexiguum</i>	0	0	0	0	0	0	-	
<i>H. pusillum</i>	6	5	0	0	0	0	85	<i>H. paludicola</i> (1)
<i>H. salicicola</i>	8	8	0	0	0	0	100	
Total	128	103 (80%)	17 (13%)	5 (4%)	1 (1%)	0 (0%)	88	
Denudata-Echinospora	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. echinosporum</i>	0	0	0	0	0	0	-	
<i>H. populinum</i>	1	1	0	0	0	0	100	
<i>H. rostratum</i>	4	3	1	0	0	0	87	<i>H. populinum</i> (1)
Total	5	4 (80%)	1 (20%)	0 (0%)	0 (0%)	0 (0%)	89	

<i>Denudata-Hiemalia</i>	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. hiemale</i>	19	18	0	1	0	0	96	<i>H. crustuliniforme</i> (1)
Total	19	18 (95%)	0 (0%)	1 (5%)	0 (0%)	0 (0%)	96	
<i>Duracinus</i>	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. duracinoides</i>	2	2	0	0	0	0	100	
Total	2	2 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	100	
<i>Hebeloma</i>-‘subject1’	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. fuscatum</i>	5	3	1	1	0	0	76	<i>H. nigellum</i> (1), <i>H. paludicola</i> (1)
<i>H. grandisporum</i>	1	0	0	1	0	0	33	<i>H. spetsbergense</i> (1)
<i>H. monticola</i>	6	5	1	0	0	0	91	<i>H. palustre</i> (1)
<i>H. nigellum</i>	7	3	3	1	0	0	69	<i>H. fuscatum</i> (3), <i>H. paludicola</i> (1)
<i>H. paludicola</i>	8	5	0	1	1	0	71	<i>H. fuscatum</i> (3)
<i>H. palustre</i>	24	23	1	0	0	0	97	<i>H. monticola</i> (1)
<i>H. sordescens</i>	5	2	1	1	0	0	60	<i>H. palustre</i> (2), <i>H. monticola</i> (1)
<i>H. spetsbergense</i>	14	8	3	1	0	0	72	<i>H. fuscatum</i> (3), <i>H. nigellum</i> (2), <i>H. paludicola</i> (1)
Total	70	49 (70%)	10 (14%)	6 (9%)	1 (1%)	0 (0%)	80	
<i>Hebeloma</i>-‘subject2’	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. alpinicola</i>	15	8	2	1	1	0	66	<i>H. excedens</i> (4), <i>H. mesophaeum</i> (3)
<i>H. ambustiterratum</i>	6	6	0	0	0	0	100	
<i>H. cistophilum</i>	6	5	1	0	0	0	91	<i>H. subtortum</i> (1)
<i>H. colvinii</i>	3	3	0	0	0	0	100	
<i>H. excedens</i>	14	4	6	3	1	0	58	<i>H. alpinicola</i> (5), <i>H. mesophaeum</i> (3), <i>H. velatum</i> (2)
<i>H. harperi</i>	2	2	0	0	0	0	100	

<i>Hebeloma</i>-‘subject2’ continued	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. marginatulum</i>	6	4	1	0	0	1	78	<i>H. alpinicola</i> (1), <i>H. mesophaeum</i> (1)
<i>H. mesophaeum</i>	16	12	3	1	0	0	86	<i>H. alpinicola</i> (2), <i>H. excedens</i> (2)
<i>H. pascuense</i>	1	0	0	0	1	0	25	<i>H. excedens</i> (1)
<i>H. psammophilum</i>	2	1	1	0	0	0	75	<i>H. cistophilum</i> (1)
<i>H. pubescens</i>	2	2	0	0	0	0	100	
<i>H. subtortum</i>	7	5	2	0	0	0	85	<i>H. mesophaeum</i> (2)
<i>H. velatum</i>	14	13	1	0	0	0	96	<i>H. marginatulum</i> (1)
Total	94	65 (69%)	17 (18%)	5 (5%)	3 (3%)	1 (1%)	80	
‘Islandica’	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. islandicum</i>	1	0	0	0	0	0	9	<i>H. pallidolabiatum</i> (1)
Total	1	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	9	
‘Mediorufa’	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. lacteocoffeatum</i>	0	0	0	0	0	0	-	
<i>H. mediorufum</i>	0	0	0	0	0	0	-	
<i>H. nothofagatorum</i>	0	0	0	0	0	0	-	
Total	0	0	0 (0%)	0 (0%)	0 (0%)	0 (0%)	-	
<i>Myxocybe</i>	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. radicosum</i>	4	4	0	0	0	0	100	
<i>H. sagarae</i>	1	1	0	0	0	0	100	
Total	5	5 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	100	

<i>Naviculospora</i>	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. avellaneum</i>	3	3	0	0	0	0	100	
<i>H. catalaunicum</i>	2	1	1	0	0	0	75	<i>H. velutipes</i> (1)
<i>H. nanum</i>	5	2	2	0	0	1	64	<i>H. cylindrosporum</i> (1), <i>H. circinans</i> (1), <i>H. catalaunicum</i> (1)
<i>H. naviculosporum</i>	4	3	0	0	1	0	81	<i>H. cavipes</i> (1)
<i>H. sub australe</i>	2	2	0	0	0	0	100	
<i>H. subfastibile</i>	1	1	0	0	0	0	100	
Total	17	12 (71%)	3 (18%)	0 (0%)	1 (6%)	1 (6%)	82	

<i>Porphyrospora</i>	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. aminophilum</i>	4	4	0	0	0	0	100	
<i>H. angustilamellatum</i>	2	1	0	0	1	0	62	<i>H. danicum</i> (1)
<i>H. flavidifolium</i>	1	1	0	0	0	0	100	
<i>H. ifeleletorum</i>	0	0	0	0	0	0	-	
<i>H. indicum</i>	0	0	0	0	0	0	-	
<i>H. lactariolens</i>	1	0	0	1	0	0	33	<i>H. youngii</i> (1)
<i>H. parvisporum</i>	1	1	0	0	0	0	100	
<i>H. porphyrosporum</i>	2	2	0	0	0	0	100	
<i>H. radicans</i>	0	0	0	0	0	0	-	
<i>H. sarcophyllum</i>	0	0	0	0	0	0	-	
<i>H. victoriense</i>	1	1	0	0	0	0	100	
<i>H. vinosophyllum</i>	1	1	0	0	0	0	100	
<i>H. youngii</i>	0	0	0	0	0	0	-	
Total	13	11 (85%)	0 (0%)	1 (8%)	1 (8%)	0 (0%)	89	

<i>Pseudoamarens</i>	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. pseudoamarens</i>	4	4	0	0	0	0	100	
Total	4	4 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	100	

Sacchariolentia	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. fuisporum</i>	3	2	0	0	1	0	75	<i>H. ischnostylum</i> (1)
<i>H. ischnostylum</i>	5	4	0	1	0	0	86	<i>H. fuisporum</i> (1)
<i>H. nauseosum</i>	5	4	0	1	0	0	86	<i>H. pusillum</i> (1)
<i>H. odoratissimum</i>	4	0	0	3	0	0	28	<i>H. nauseosum</i> (2), <i>H. duracinoides</i> (2)
<i>H. sacchariolens</i>	5	4	1	0	0	0	90	<i>H. leucosarx</i> (1)
Total	22	14 (64%)	1 (5%)	5 (23%)	1 (5%)	0 (0%)	74	

Scabrispora	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. anthracophilum</i>	5	4	0	0	0	1	84	<i>H. ischnostylum</i> (1)
<i>H. birrus</i>	10	10	0	0	0	0	100	
<i>H. circinans</i>	5	5	0	0	0	0	100	
<i>H. cylindrosporum</i>	6	5	0	1	0	0	88	<i>H. pseudoamarescens</i> (1)
<i>H. danicum</i>	5	5	0	0	0	0	100	
<i>H. laterinum</i>	12	12	0	0	0	0	100	
<i>H. lindae</i>	3	2	1	0	0	0	83	<i>H. quercetorum</i> (1)
<i>H. luchuense</i>	1	1	0	0	0	0	100	
<i>H. melleum</i>	1	0	1	0	0	0	50	<i>H. pumilum</i> (1)
<i>H. pumilum</i>	6	4	2	0	0	0	83	<i>H. birrus</i> (1), <i>H. melleum</i> (1)
<i>H. radicosoides</i>	2	2	0	0	0	0	100	
<i>H. viscidissimum</i>	5	4	0	1	0	0	86	<i>H. velutipes</i> (1)
Total	61	54 (89%)	4 (7%)	2 (3%)	0 (0%)	1 (2%)	93	

Sinapizantia	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. bulbiferum</i>	5	4	1	0	0	0	90	<i>H. celatum</i> (1)
<i>H. sinapizans</i>	12	12	0	0	0	0	100	
Total	17	16 (94%)	1 (6%)	0 (0%)	0 (0%)	0 (0%)	97	

Syrjense	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. syrjense</i>	6	6	0	0	0	0	100	
Total	6	6 (100%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	100	
Theobromina	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. alboerumpens</i>	1	0	1	0	0	0	50	<i>H. theobrominum</i> (1)
<i>H. cohaerens</i>	1	1	0	0	0	0	100	
<i>H. erumpens</i>	2	1	1	0	0	0	75	<i>H. griseopruinatum</i> (1)
<i>H. griseopruinatum</i>	4	3	1	0	0	0	87	<i>H. erumpens</i> (1)
<i>H. parvicystidium</i>	4	4	0	0	0	0	100	
<i>H. plesiocistum</i>	2	2	0	0	0	0	100	
<i>H. theobrominum</i>	9	7	0	1	0	0	81	<i>H. nanum</i> (2)
<i>H. vesterholtii</i>	7	4	2	0	0	1	74	<i>H. theobrominum</i> (2), <i>H. nanum</i> (1)
Total	30	22 (73%)	5 (17%)	1 (3%)	0 (0%)	1 (3%)	83	
Velutipes	Total	1st	2nd	3rd	4th	5th	MRR score	Confused as
<i>H. aestivale</i>	11	10	1	0	0	0	95	<i>H. ischnostylum</i> (1)
<i>H. albidulum</i>	7	7	0	0	0	0	100	
<i>H. celatum</i>	6	3	0	2	1	0	65	<i>H. quercetorum</i> (2), <i>H. velutipes</i> (1)
<i>H. citrisporum</i>	1	0	1	0	0	0	50	<i>H. celatum</i> (1)
<i>H. erebium</i>	5	4	1	0	0	0	90	<i>H. celatum</i> (1)
<i>H. incarnatum</i>	7	5	2	0	0	0	85	<i>H. velutipes</i> (2)
<i>H. leucosarx</i>	12	4	6	1	1	0	63	<i>H. velutipes</i> (8)
<i>H. neurophyllum</i>	6	6	0	0	0	0	100	
<i>H. quercetorum</i>	4	4	0	0	0	0	100	
<i>H. subconcolor</i>	3	3	0	0	0	0	100	
<i>H. velutipes</i>	32	26	6	0	0	0	90	<i>H. leucosarx</i> (4), <i>H. alpinum</i> (1), <i>H. celatum</i> (1)
Total	94	72 (77%)	17 (18%)	3 (3%)	2 (2%)	0 (0%)	86	