

TAXON

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Species delimitation at a global scale reveals high species richness with complex biogeography and patterns of symbiont association in *Peltigera* section *Peltigera* (lichenized Ascomycota: Lecanoromycetes)

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Table S1. Taxon sampling for *Peltigera* sect. *Peltigera* and sect. *Retifoveatae* and five outgroup species, with associated voucher information, including mycobiont and cyanobiont sequences. When applicable, the cyanobiont *rbcLX* phylogroup is specified following O'Brien & al. (2013), Magain & al. (2017a), and the present study. The term “unique” was used when the *rbcLX* sequence did not cluster with any of the defined phylogroups (roman numerals) or haplotypes. Newly generated sequences are indicated in bold. Clade numbers follow Fig. 1. OG indicates outgroup taxa.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β -tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/haplotype
<i>Peltigera aphthosa</i> (L.) Willd.	OG	P4002	U.S.A.: AK, <i>Miadlikowska s.n.</i> (OSC)	–	MH771012	MH770256	MH770507	MH770009	–	N/A
<i>P. antarctica</i> C.W.Dodge	5	P0077	Chile: Region XII, <i>Goffinet 6837</i> (CONN)	MH758271	MH770824	MH770051	MH770300	MH769795	KX923110	VI
<i>P. antarctica</i> C.W.Dodge	5	P0442	Chile: Region XI, <i>Rubio 4073</i> (H)	MH758272	MH770825	MH770052	MH770301	MH769796	MH770563	VI
<i>P. antarctica</i> C.W.Dodge	5	P1805	South Orkney Islands, <i>Lindsay 935</i> (H)	MH758275	MH770826	–	–	–	–	N/A
<i>P. antarctica</i> C.W.Dodge	5	P2034	Argentina, <i>Stenroos 1954</i> (H)	MH758270	–	MH770053	MH770302	–	MH770564	XXX
<i>P. antarctica</i> C.W.Dodge	5	P2044	Chile: Region XII, <i>Goffinet 10521-2</i> (CONN)	MH758273	MH770827	MH770054	MH770303	MH769797	MH770565	XXV
<i>P. antarctica</i> C.W.Dodge	5	P2065	Chile: Region X, <i>Wheeler & Nelson 5893</i> (CONC)	MH758274	MH770828	MH770055	MH770304	MH769798	MH770566	unique
<i>P. aubertii</i> C.W.Dodge	2	P1815	Chile: Region XII, <i>Stenroos 2459</i> (H)	MH758229	MH770812	–	–	–	–	N/A
<i>P. aubertii</i> C.W.Dodge	2	P2037	Chile: Region XII, <i>Goffinet 10559</i> (CONN)	MH758230	MH770813	MH770013	MH770259	MH769760	MH770512	XXII
<i>P. aubertii</i> C.W.Dodge	2	P2040	Chile: Region XII, <i>Shaw 18004</i> (DUKE)	MH758231	–	–	–	–	MH770513	XXII
<i>P. aubertii</i> C.W.Dodge	2	P2042	Chile: Region XII, <i>Goffinet 10558</i> (CONN)	MH758232	–	–	–	–	MH770514	XXII
<i>P. aubertii</i> C.W.Dodge	2	P2056	Chile: Region X, <i>Wheeler & Nelson 3191</i> (CONC)	MH758233	MH770814	MH770014	MH770260	MH769761	MH770515	XXIII
<i>P. aubertii</i> C.W.Dodge	2	P2066	Chile: Region X, <i>Wheeler & Nelson 5870</i> (CONC)	MH758234	–	MH770015	MH770261	–	MH770516	unique
<i>P. austroamericana</i> Zahlbr./ <i>fibrilloides</i> (Gyeln.) Vitik. 1	9	P0027	Costa Rica, <i>Miadlikowska & Lutzoni 23.03.03-10</i> (DUKE 0357975)	MH758454	MH770954	–	–	–	MH770742	XXXIX
<i>P. austroamericana</i> Zahlbr./ <i>fibrilloides</i> (Gyeln.) Vitik. 1	9	P0408	Colombia, <i>Dumont & al. 4066</i> (H)	MH758440	MH770955	MH770185	MH770444	–	MH770743	V
<i>P. austroamericana</i> Zahlbr./ <i>fibrilloides</i> (Gyeln.) Vitik. 2	9	P2059	Mexico, <i>Herrera-Campos 13380</i> (MEXU)	MH758442	MH770956	MH770186	MH770445	MH769940	MH770744	XXXIX
<i>P. austroamericana</i> Zahlbr./ <i>fibrilloides</i> (Gyeln.) Vitik. 2	9	P2138	Mexico, <i>Herrera-Campos 13381</i> (MEXU)	MH758462	MH770957	MH770187	MH770446	MH769941	MH770745	N/A
<i>P. austroamericana</i> Zahlbr./ <i>fibrilloides</i> (Gyeln.) Vitik. 3	9	P2048	Peru, <i>Lutzoni 05.23.212-7</i> (DUKE 0357974)	MH758465	MH770958	MH770188	MH770447	MH769942	MH770746	XXXIX
<i>P. austroamericana</i> Zahlbr./ <i>fibrilloides</i> (Gyeln.) Vitik. 3	9	P2073	Peru, <i>Rivas Plata & Ramos s.n.</i> (DUKE 0357973)	MH758466	MH770959	MH770189	MH770448	MH769943	MH770747	XXXVI
<i>P. austroamericana</i> Zahlbr./ <i>fibrilloides</i> (Gyeln.) Vitik. 3	9	P2076	Colombia, <i>Lücking 33628</i> (UDBC)	MH758451	MH770960	MH770190	MH770449	MH769944	MH770748	XXXVI
<i>P. austroamericana</i> Zahlbr./ <i>fibrilloides</i> (Gyeln.) Vitik. 3	9	P2197	Ecuador, <i>Truong 3975</i> (DUKE 040152)	MH758460	MH770961	MH770191	MH770450	MH769945	MH770749	XXXIX

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β -tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/haplotype
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 4	9	P0025	Costa Rica, <i>Miadlikowska & Lutzoni</i> 23.03.03-8 (DUKE 0401856)	MH758453	MH770962	MH770192	MH770451	MH769946	MH770750	XXXIXc
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 4	9	P0032	Costa Rica, <i>Miadlikowska & Lutzoni</i> 23.03.03-15 (DUKE 0401855)	MH758455	MH770963	—	—	—	MH770742	XL
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 4	9	P0038	Costa Rica, <i>Miadlikowska & Lutzoni</i> 23.03.03-21 (DUKE 0401857)	MH758456	MH770964	—	—	—	MH770743	XXXIX
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 4	9	P0054	Costa Rica, <i>Miadlikowska & Lutzoni</i> 22.03.03-37 (DUKE 0401853)	MH758457	MH770965	—	—	—	MH770744	XL
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 4	9	P2060	Mexico, <i>Herrera-Campos</i> 137 (MEXU)	MH758461	MH770966	MH770193	MH770452	MH769947	MH770745	XXXIX
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 4	9	P2070	Costa Rica, <i>Miadlikowska & Lutzoni</i> 22.03.03-21 (DUKE 0401854)	MH758458	—	—	—	—	—	N/A
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 5	9	P1598	Brazil, <i>Miadlikowska & al. s.n.</i> (CGMS 34505)	MH758438	MH770967	MH770194	MH770453	MH769948	MH770751	V
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 5	9	P1738	Peru, <i>Miadlikowska s.n.</i> (DUKE)	MH758443	—	—	—	—	MH770752	XXXIXd
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 5	9	P2010	Brazil, <i>Canes</i> 10234 (CGMS 35044)	MH758447	MH770968	MH770195	MH770454	MH769949	MH770753	V
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 5	9	P2011	Brazil, <i>Magain s.n.</i> (CGMS 34427)	MH758448	MH770969	MH770196	MH770455	MH769950	MH770754	V
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 5	9	P2019	Ecuador, <i>Kalb</i> 18391 (DUKE)	MH758459	MH770970	MH770197	—	MH769951	MH770755	XXXIX
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 5	9	P2033	Brazil, <i>Miadlikowska s.n.</i> (CGMS 34409)	MH758449	—	—	—	—	MH770756	V
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 5	9	P2052	Bolivia, <i>Kukwa</i> 8504 (ex UGDA-L-17700, DUKE dupl. 0401859)	MH758445	MH770971	MH770198	MH770456	MH769952	MH770757	XXXIX
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 5	9	P2134	Bolivia, <i>Truong</i> 2826 (DUKE 0401858)	MH758446	MH770972	MH770199	MH770457	MH769953	—	N/A
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 5	9	P1729	Peru, <i>Lutzoni</i> 05.23.2012-13 (DUKE 0357966)	MH758464	—	—	—	—	—	N/A
<i>P. austroamericana</i> Zahlbr./ <i>fibriloides</i> (Gyeln.) Vitik. 6	9	P2055	Peru, <i>Bennett s.n.</i> (WIS)	MH758444	MH770973	MH770200	MH770458	MH769954	MH770758	XXXVI
<i>P. austroamericana</i> Zahlbr. s.l.	9	P0940	Colombia, <i>Lücking</i> 33653 (UDBC)	MH758450	—	—	—	—	MH770733	XXXIXb
<i>P. austroamericana</i> Zahlbr. s.l.	9	P1201	Mexico, <i>Barcenás-Penas</i> 1233 (MEXU)	MH758441	—	—	—	—	MH770734	XXXVI
<i>P. austroamericana</i> Zahlbr. s.l.	9	P1474	Peru, <i>Miadlikowska s.n.</i> (DUKE 0357967)	MH758463	—	—	—	—	MH770735	XXXIX

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β-tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/ haplotype
<i>P. austroamericana</i> Zahlbr. s.l.	9	P1602	Brazil, <i>Miadlikowska & al. s.n.</i> (CGMS 34490)	MH758439	–	–	–	–	MH770736	V
<i>P. austroamericana</i> Zahlbr. s.l.	9	P1727	Peru, <i>Rivas Plata & Ramos s.n.</i> (DUKE 0357971)	–	–	–	–	–	MH770737	XXXIXd
<i>P. austroamericana</i> Zahlbr. s.l.	9	P2079	Colombia, <i>Lücking 33631</i> (UDBC)	MH758452	–	–	–	–	MH770738	XXXVI
<i>P. canina</i> (L.) Willd. 1	9	HOB12	Canada: BC, <i>O'Brien 020708-4-5-1</i> (DUKE)	FJ708890	–	MH770201	MH770459	MH769955	KC437709	V
<i>P. canina</i> (L.) Willd. 1	9	HOB13	Canada: BC, <i>O'Brien 030611-0-0-6</i> (DUKE)	FJ708881	FJ709294	MH770202	MH770460	MH769956	–	N/A
<i>P. canina</i> (L.) Willd. 1	9	P0014	Iceland, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357980)	KU954063	KM005803	MH770203	MH770461	MH769957	KX923097	VI
<i>P. canina</i> (L.) Willd. 1	9	P1411	Russia: Krasnoyarsk Territory, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357997)	MH758475	MH770974	–	–	MH769958	MH770759	V
<i>P. canina</i> (L.) Willd. 1	9	P1412	Russia: Krasnoyarsk Territory, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401822)	MH758475	–	–	–	–	MH770760	V
<i>P. canina</i> (L.) Willd. 1	9	P1827	Papua New Guinea, <i>Sérusiaux s.n.</i> (LG)	–	–	–	–	–	MH770761	XXXI
<i>P. canina</i> (L.) Willd. 1	9	P2032	Russia: Krasnoyarsk Territory, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401836)	MH758478	MH770975	MH770204	MH770462	MH769959	MH770762	V
<i>P. canina</i> (L.) Willd. 1	9	P2097	China: Yunnan, <i>Miadlikowska s.n.</i> (DUKE 0401862)	MH758470	MH770976	MH770205	–	MH769960	MH770763	XXXVIIIa
<i>P. canina</i> (L.) Willd. 1	9	P2113	Austria, <i>Hafellner & Miadlikowska s.n.</i> (DUKE 0130114)	MH758467	MH770977	MH770206	MH770463	MH769961	MH770764	V
<i>P. canina</i> (L.) Willd. 1	9	P2118	France: Corsica, <i>Vust 6421</i> (G)	MH758471	MH770978	MH770207	MH770464	MH769962	MH770765	XXIX
<i>P. canina</i> (L.) Willd. 1	9	P2120	Switzerland, <i>Vust 279</i> (G)	MH758479	MH770979	MH770208	MH770465	MH769963	MH770766	V
<i>P. canina</i> (L.) Willd. 1	9	P2123	France: Corsica, <i>Vust 6412</i> (G)	MH758473	MH770980	MH770209	MH770466	MH769964	MH770767	XXIX
<i>P. canina</i> (L.) Willd. 1	9	P2158	Papua New Guinea, <i>Aptroot 32283</i> (H)	–	–	–	–	–	MH770768	XXXI
<i>P. canina</i> (L.) Willd. 1	9	P2159	Papua New Guinea, <i>Sérusiaux s.n.</i> (LG)	MH758472	MH770981	MH770210	–	–	–	N/A
<i>P. canina</i> (L.) Willd. 1	9	P2193	The Netherlands, <i>Aptroot 53752</i> (ABL)	MH758474	MH770982	MH770211	MH770467	MH769965	MH770769	XXV
<i>P. canina</i> (L.) Willd. 1	9	P2213	Canada: BC, <i>Goward 5305</i> (UBC)	MH758469	MH770983	MH770212	MH770468	MH769966	MH770770	VI
<i>P. canina</i> (L.) Willd. 2	9	HOB10	Canada: BC, <i>O'Brien 020708-31-5-2</i> (DUKE)	FJ708874	FJ709304	MH770213	–	MH769967	–	N/A
<i>P. canina</i> (L.) Willd. 2	9	HOB11	Canada: BC, <i>O'Brien 020708-70-5-2</i> (DUKE)	FJ708876	FJ709303	–	–	–	–	N/A
<i>P. canina</i> (L.) Willd. 2	9	HOB9	Canada: BC, <i>O'Brien 020708-70-1-3</i> (DUKE)	FJ708875	FJ709304	MH770216	MH770469	MH769968	–	N/A
<i>P. canina</i> (L.) Willd. 2	9	P0004	Iceland, <i>Miadlikowska & Lutzoni 08.08.10-3</i> (DUKE 0401829)	KU954062	KM005821	MH770217	MH770470	MH769969	KX923096	XXXIII
<i>P. canina</i> (L.) Willd. 2	9	P0652	U.S.A.: NC, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357998)	MH758480	–	MH770218	–	–	MH770771	XXXVIIIa

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β -tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/haplotype
<i>P. canina</i> (L.) Willd. 2	9	P0655	U.S.A.: NC, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401827)	–	–	MH770219	–	–	MH770772	XXXVIIIa
<i>P. canina</i> (L.) Willd. 2	9	P0663	U.S.A.: NC, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0358000)	MH758481	–	MH770220	–	–	MH770773	XXXVII
<i>P. canina</i> (L.) Willd. 2	9	P1319	U.S.A.: NC, <i>Lutzoni & Miadlikowska s.n.</i> (DUKE 0401828)	MH758475	–	MH770221	–	–	KX923113	XXXVIIIa
<i>P. canina</i> (L.) Willd. 2	9	P1483	U.S.A.: MO, <i>Buck 48584</i> (NY 00729928)	MH758482	–	MH770222	–	–	MH770774	XXXIV
<i>P. canina</i> (L.) Willd. 2	9	P2026	U.S.A.: NC, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357999)	MH758483	MH770984	MH770223	MH770471	MH769970	MH770775	XXXVIIIa
<i>P. canina</i> (L.) Willd. 2	9	P2081	U.S.A.: NC, <i>Hollinger 2731</i> (UBC)	MH758484	MH770985	MH770224	MH770472	MH769971	MH770776	XXXVII
<i>P. canina</i> (L.) Willd. 2	9	P2090	U.S.A.: OK, <i>Buck 46463</i> (DUKE 0138952)	MH758485	MH770986	MH770216	MH770473	MH769972	MH770777	XXXIV
<i>P. canina</i> (L.) Willd. 2	9	P2126	U.S.A.: NC, <i>Goffinet 4755</i> (DUKE)	–	MH770987	MH770217	MH770474	–	MH770778	XXXIV
<i>P. canina</i> (L.) Willd. 2	9	P2190	Canada: AB, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401817)	MH758468	MH770988	MH770218	–	MH769973	MH770779	VI
<i>P. canina</i> (L.) Willd. 2	9	P2201	U.S.A.: UT, <i>Truong 3996</i> (DUKE 0401865)	MH758486	MH770989	MH770219	MH770475	MH769974	MH770780	XXX
<i>P. canina</i> (L.) Willd. 2	9	P2211	U.S.A.: CO, <i>Leavitt SDL-CO-13</i> (BRY-C)	MH758487	MH770990	MH770220	–	MH769975	MH770781	XXX
<i>P. canina</i> (L.) Willd. 2	9	P2221	U.S.A.: MI, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401826)	MH758488	MH770991	MH770221	MH770476	MH769976	MH770782	XXXIII
<i>P. canina</i> (L.) Willd. 2	9	P2222	U.S.A.: TN, <i>Chen & Gajdeczka s.n.</i> (DUKE 0401818)	MH758489	MH770992	MH770222	MH770477	MH769977	MH770783	V
<i>P. castanea</i> Goward & al.	4	P2102	Russia: Krasnoyarsk Territory, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357981)	MH758239	–	MH770029	MH770279	–	MH770534	XXXIIIa
<i>P. cinnamomea</i> Goward	7	HOB21	Canada: BC, <i>O'Brien 030611-0-0-4</i> (DUKE)	FJ708912	FJ709306	MH770129	MH770394	MH769886	–	N/A
<i>P. cinnamomea</i> Goward	7	HOB22	Canada: BC, <i>O'Brien 040605-11-2</i> (DUKE)	FJ708913	FJ709307	MH770130	MH770395	MH769887	–	N/A
<i>P. cinnamomea</i> Goward	7	HOB23	Canada: BC, <i>O'Brien 040605-12-3</i> (DUKE)	FJ708911	FJ709305	–	–	–	–	N/A
<i>P. cinnamomea</i> Goward	7	P2141= P1808	Canada: BC, <i>Goward s.n.</i> (UBC)	MH758379	KX880187	MH770131	MH770396	MH769888	MH770687	XLII
<i>P. continentalis</i> Vitik.	3	NP29	China: Ningxia, <i>Niu 12-0087</i> (Ningxia Univ.)	MH758236	MH770820	MH770026	MH770276	MH769773	MH770531	XXXIIc
<i>P. continentalis</i> Vitik.	3	P1810	Russia: Krasnoyarsk Territory, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357965)	MH758237	KM005807	MH770027	MH770277	MH769774	MH770532	XXXIX
<i>P. continentalis</i> Vitik.	3	P2099	Russia: Krasnoyarsk Territory, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357969)	MH758238	MH770821	MH770028	MH770278	MH769775	MH770533	XXXIX
<i>P. deganii</i> Gyeln. 1	8	P0523	Norway, <i>Magain s.n.</i> (LG)	MH758402	KM005828	MH770136	MH770400	MH769890	MH770692	XLIII

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β-tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/haplotype
<i>P. degenii</i> Gyeln. 1	8	P0563	Norway, <i>Magain s.n.</i> (LG)	MH758403	MH770913	MH770137	MH770401	MH769891	MH770693	XVI
<i>P. degenii</i> Gyeln. 1	8	P0586	Norway, <i>Magain s.n.</i> (LG)	MH758404	MH770914	MH770138	MH770402	MH769892	MH770694	XIII
<i>P. degenii</i> Gyeln. 1	8	P2108	Austria, <i>Hafellner & Miadlikowska s.n.</i> (DUKE 0032160)	MH758399	MH770915	MH770139	MH770403	MH769893	MH770695	XXX
<i>P. degenii</i> Gyeln. 1	8	P2129	France, <i>Magain s.n.</i> (DUKE 0401808)	MH758400	MH770916	MH770140	MH770404	MH769894	–	N/A
<i>P. degenii</i> Gyeln. 1	8	P2130	France, <i>Magain s.n.</i> (DUKE 0401807)	MH758401	MH770917	MH770141	MH770405	MH769895	MH770696	V
<i>P. degenii</i> Gyeln. 1	8	P2133	Ukraine, <i>Dymytrova & Naumovich 183</i> (KW 69499)	MH758405	MH770918	MH770142	MH770406	MH769896	–	N/A
<i>P. degenii</i> Gyeln. 1	8	P2170	Ukraine, <i>Dymytrova & Savchyn 22</i> (KW)	MH758406	MH770919	MH770143	MH770407	MH769897	MH770697	XLIII
<i>P. degenii</i> Gyeln. 2a	8	HOB3	Canada: BC, <i>O'Brien 040605-10-3</i> (DUKE)	FJ709030	FJ709315	MH770144	MH770408	MH769898	–	N/A
<i>P. degenii</i> Gyeln. 2a	8	P2107	Canada: QC, <i>Darnajoux s.n.</i> (DUKE 0401806)	MH758410	MH770920	MH770145	–	MH769899	MH770698	V
<i>P. degenii</i> Gyeln. 2a	8	P2139	Russia: Khabarovsk Territory, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401824)	MH758413	MH770921	MH770146	MH770409	MH769900	MH770699	XLIII
<i>P. degenii</i> Gyeln. 2a	8	P2147	Canada: BC, <i>Goward 02-380</i> (ACC L41345)	MH758407	MH770922	MH770147	–	MH769901	MH770700	XLIII
<i>P. degenii</i> Gyeln. 2a	8	P2182	Canada: QC, <i>Roy 11-5914C</i> (QFA 0595636)	MH758411	–	MH770148	–	MH769902	MH770701	XLII
<i>P. degenii</i> Gyeln. 2a	8	P2183	Canada: QC, <i>Miadlikowska & Lutzoni 07.04.03-1A</i> (DUKE 0401805)	MH758412	MH770923	MH770149	–	MH769903	MH770702	XIII
<i>P. degenii</i> Gyeln. 2a	8	P3086	Japan: Hokkaido, <i>Thor 13948</i> (UPS 392189)	MH758409	MH770924	MH770150	MH770410	MH769904	MH770703	XIII
<i>P. degenii</i> Gyeln. 2b	8	P2228	Japan: Honshu, <i>Thor 11963</i> (UPS 395916)	MH758408	–	MH770151	MH770411	MH769905	MH770704	XIII
<i>P. degenii</i> Gyeln. 3a	8	P2136	Russia: Sakhalin, <i>Tchabanenko s.n.</i> (SAKH 3083)	MH758419	MH770925	MH770152	MH770412	MH769906	MH770705	XLIII
<i>P. degenii</i> Gyeln. 3a	8	P2137	Russia: Sakhalin, <i>Tchabanenko s.n.</i> (SAKH 3081)	MH758420	MH770926	MH770153	MH770413	MH769907	MH770706	V
<i>P. degenii</i> Gyeln. 3b	8	P1267	China: Jilin, <i>Sohrabi 16474</i> (H)	MH758414	MH770927	MH770154	MH770414	MH769908	MH770707	V
<i>P. degenii</i> Gyeln. 3b	8	P1276	China: Jilin, <i>Sohrabi 16417</i> (H)	MH758415	MH770928	MH770155	MH770415	MH769909	MH770708	V
<i>P. degenii</i> Gyeln. 3b	8	P2022	Russia: Kurile Islands, <i>Abrahamczyk 15</i> (H)	MH758416	MH770929	MH770156	MH770416	MH769910	MH770709	V
<i>P. degenii</i> Gyeln. 3c	8	ES3306	Japan: Honshu, <i>Sérusiaux s.n.</i> (LG)	MH758417	MH770930	MH770157	MH770417	MH769911	MH770710	XXXIIb
<i>P. degenii</i> Gyeln. 3c	8	P2023	Japan: Honshu, <i>Ohmura & al. s.n.</i> (DUKE 0188055)	MH758418	MH770931	MH770158	MH770418	MH769912	MH770711	V
<i>P. didactyla</i> (With.) J.R.Laundon 1	4	P2140=P1812	Belgium, <i>Magain s.n.</i> (DUKE 0357985)	MH758240	–	MH770030	MH770280	MH769777	MH770535	unique
<i>P. didactyla</i> (With.) J.R.Laundon 1	4	P2144	Norway, <i>Magain s.n.</i> (LG)	MH758244	–	MH770031	MH770281	MH769778	–	N/A

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β-tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/ haplotype
<i>P. didactyla</i> (With.) J.R.Laundon 1	4	P2145	New Zealand, Campbell Island, <i>Harris 5326</i> (NY)	MH758241	–	–	–	–	MH770536	unique
<i>P. didactyla</i> (With.) J.R.Laundon 1	4	P2200	U.S.A.: UT; <i>Truong 3991</i> (DUKE 0401851)	MH758246	–	MH770032	MH770282	MH769779	MH770537	XXX
<i>P. didactyla</i> (With.) J.R.Laundon 2	4	NP2	China: Sichuan, <i>Wang 10-31861</i> (KUN)	MH758243	–	MH770033	MH770283	–	MH770538	XXXIIb
<i>P. didactyla</i> (With.) J.R.Laundon 2	4	P2217	Russia: Khabarovsk, <i>Miadlikowska & Lutzoni. s.n.</i> (DUKE 0357977)	–	–	–	–	–	MH770539	XXXIII
<i>P. didactyla</i> (With.) J.R.Laundon 3	4	P2109	U.S.A.: PA, <i>Lendemer 13269</i> (DUKE 0154812)	MH758245	–	–	–	MH769776	MH770540	XXXV
<i>P. didactyla</i> (With.) J.R.Laundon 3	4	P2110	Canada: BC, <i>Goward s.n.</i> (DUKE 0017197)	MH758242	–	MH770034	–	–	MH770541	XXX
<i>P. erioderma</i> Vain. 1	7	P2162	Papua New Guinea, <i>Sérusiaux s.n.</i> (LG)	MH758380	MH770911	MH770132	MH770397	MH769889	MH770688	XXXI
<i>P. erioderma</i> Vain. 2	7	P2163	Papua New Guinea, <i>Sérusiaux 14107</i> (LG)	MH758381	–	MH770133	MH770398	–	MH770689	XXXI
<i>P. evansiana</i> Gyeln.	9	P0630	U.S.A.: NC, <i>Miadlikowska & al. s.n.</i> (DUKE 0401810)	MH758490	–	–	–	–	MH770784	XXXIXa
<i>P. evansiana</i> Gyeln.	9	P1817	U.S.A.: PA, <i>Lendemer 17422</i> (NY 01105603)	MH758491	KM005808	–	MH770478	MH769978	MH770785	XXXIXa
<i>P. evansiana</i> Gyeln.	9	P1818	U.S.A.: PA, <i>Lendemer 17753</i> (NY 01103610)	MH758492	KM005809	–	–	–	–	N/A
<i>P. evansiana</i> Gyeln.	9	P2084	U.S.A.: NC, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357991)	MH758493	MH770993	MH770225	MH770479	MH769979	MH770786	XXXIXa
<i>P. evansiana</i> Gyeln.	9	P2189	U.S.A.: MI, <i>Miadlikowska & al s.n.</i> (DUKE 0401813)	MH758494	MH770994	MH770226	MH770480	MH769980	MH770787	XXXIIIb
<i>P. extenuata</i> (Nyl. ex Vain.) Lojka 1	4	P0081	Russia: Kamchatka, <i>Himmelbrandt s.n.</i> (H)	MH758251	–	–	–	–	MH770542	XXXIIIb
<i>P. extenuata</i> (Nyl. ex Vain.) Lojka 1	4	P1109	Canada: BC, <i>Goward 10-74</i> (UBC)	MH758250	–	–	–	–	MH770543	unique
<i>P. extenuata</i> (Nyl. ex Vain.) Lojka 1	4	P2064	Chile: Region XI, <i>Wheeler & Nelson 6297</i> (CONC)	MH758247	–	MH770035	MH770284	MH769780	MH770544	XXXIIIb
<i>P. extenuata</i> (Nyl. ex Vain.) Lojka 1	4	P2103	Russia: Krasnoyarsk Territory, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357970)	MH758252	–	MH770036	MH770285	MH769781	MH770545	XXXIIIb
<i>P. extenuata</i> (Nyl. ex Vain.) Lojka 1	4	P2104	U.S.A.: MI, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357972)	MH758253	–	MH770037	MH770286	MH769782	MH770546	XXXIIIb
<i>P. extenuata</i> (Nyl. ex Vain.) Lojka 1	4	P2111	U.S.A.: NY, <i>Harris 53633</i> (DUKE 0138925)	MH758254	–	MH770038	MH770287	MH769783	MH770547	XXXIIIb
<i>P. extenuata</i> (Nyl. ex Vain.) Lojka 2	4	P0943	Colombia, <i>Lücking 33627</i> (UDBC)	MH758248	–	MH770039	MH770288	MH769784	MH770548	XXI
<i>P. extenuata</i> (Nyl. ex Vain.) Lojka 2	4	P2057	Ecuador: Galapagos, <i>Spielmann 10611</i> (CDS-51978)	MH758249	–	MH770040	MH770289	MH769785	MH770549	XXI
<i>P. fimbriata</i> Vitik. & al.	6	FIM1	Papua New Guinea, Sérusiaux & al. 2009	FJ527272	–	–	–	–	–	N/A
<i>P. fimbriata</i> Vitik. & al.	6	FIM2	Papua New Guinea, Sérusiaux & al. 2009	FJ527273	–	–	–	–	–	N/A
<i>P. fimbriata</i> Vitik. & al.	6	FIM3	Papua New Guinea, Sérusiaux & al. 2009	FJ527274	–	–	–	–	–	N/A

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β -tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/haplotype
<i>P. friesiorum</i> Gyeln.	6	P0424	Brazil, Marcelli 25096 (H)	MH758323	–	–	–	–	MH770621	V
<i>P. friesiorum</i> Gyeln.	6	P1554	Brazil, Miadlikowska & al. s.n. (CGMS 34533)	MH758324	–	–	–	–	MH770622	XXXIXe
<i>P. friesiorum</i> Gyeln.	6	P1601	Brazil, Miadlikowska & al. s.n. (CGMS 34582)	MH758325	–	–	–	–	MH770623	V
<i>P. friesiorum</i> Gyeln.	6	P1604	Brazil, Miadlikowska & al. s.n. (CGMS 34531)	MH758326	–	–	–	–	MH770624	V
<i>P. friesiorum</i> Gyeln.	6	P1607	Brazil, Miadlikowska & al. s.n. (CGMS 34575)	MH758327	–	–	–	–	MH770625	XXXIXc
<i>P. friesiorum</i> Gyeln.	6	P1647	Brazil, Miadlikowska & al. s.n. (CGMS 34539)	MH758328	MH770870	MH770094	MH770351	MH769848	MH770626	V
<i>P. friesiorum</i> Gyeln.	6	P1739	Peru, Miadlikowska s.n. (DUKE 0401814)	MH758337	MH770872	MH770096	MH770353	MH769850	MH770628	XXXIXd
<i>P. friesiorum</i> Gyeln.	6	P2005	Brazil, Miadlikowska & al. s.n. (CGMS 35043)	MH758330	–	–	–	–	MH770629	XXXIX
<i>P. friesiorum</i> Gyeln.	6	P2006	Brazil, Lutzoni & al. s.n. (CGMS 34570)	MH758331	MH770873	–	–	–	MH770630	XXXIXe
<i>P. friesiorum</i> Gyeln.	6	P2007	Brazil, Miadlikowska & al. s.n. (CGMS 34587)	MH758332	MH770874	MH770097	MH770354	MH769851	MH770631	V
<i>P. friesiorum</i> Gyeln.	6	P2008	Brazil, Miadlikowska & al. s.n. (CGMS 35050)	MH758333	–	–	–	–	MH770632	V
<i>P. friesiorum</i> Gyeln.	6	P2009	Brazil, Miadlikowska & al. s.n. (CGMS 35054)	MH758334	–	–	–	–	MH770633	V
<i>P. friesiorum</i> Gyeln.	6	P2035	Brazil, Spielmann & al. 9935 (CGMS 35048)	MH758335	MH770875	MH770098	MH770355	MH769852	MH770634	V
<i>P. friesiorum</i> Gyeln.	6	P2045	Bolivia, Kukwa 8465 (ex UGDA-L-17699 DUKE dupl.)	MH758322	MH770876	MH770099	MH770356	MH769853	MH770635	XXXVI
<i>P. frigida</i> R.Sant.	2	P0082	Chile: Region XI, Rubio 4064 (H)	MH758221	–	–	–	–	MH770517	XXXIX
<i>P. frigida</i> R.Sant.	2	P0422	Chile: Region XII, Stenroos 2192 (H)	MH758222	MH770815	–	MH770262	MH769762	MH770518	VI
<i>P. frigida</i> R.Sant.	2	P0427	Argentina, Stenroos 2158 (H)	MH758220	MH770816	MH770016	MH770263	MH769763	MH770519	VI
<i>P. frigida</i> R.Sant.	2	P2038	Chile: Region XII Goffinet 6643-1 (CONN)	–	–	–	–	–	MH770520	unique
<i>P. frigida</i> R.Sant.	2	P2041	Chile: Region XII, Shaw 18024 (DUKE)	MH758223	–	MH770017	MH770264	MH769764	MH770521	VI
<i>P. “fuscopraetextata”</i>	9	HOB7	Canada: BC, O’Brien 020708-62-5-3 (DUKE)	FJ708893	FJ709317	MH770175	MH770436	MH769930	–	N/A
<i>P. “fuscopraetextata”</i>	9	HOB8	Canada: BC, O’Brien 020708-31-5-3 (DUKE)	FJ708892	FJ709316	MH770176	MH770437	MH769931	–	N/A
<i>P. “fuscopraetextata”</i>	9	P1110	Canada: BC, Goward 06-1538B (UBC)	MH758507	MH770947	MH770177	–	MH769932	MH770723	VI
<i>P. “fuscopraetextata”</i>	9	P2012	Argentina, Stenroos 2235 (H)	MH758500	MH770948	MH770178	MH770438	MH769933	MH770724	VI
<i>P. “fuscopraetextata”</i>	9	P2014	Chile: Region XI, Rubio 4067 (H)	MH758503	MH770949	MH770179	MH770439	MH769934	MH770725	VI
<i>P. “fuscopraetextata”</i>	9	P2016	Argentina, Tibell 17537 (UPS 40375)	MH758501	–	–	–	–	MH770726	VI
<i>P. “fuscopraetextata”</i>	9	P2017	Chile: Region XII, Tibell 17788 (UPS 45291)	MH758504	–	–	–	–	MH770727	VI
<i>P. “fuscopraetextata”</i>	9	P2018	Argentina, Kalb s.n. (DUKE 0401830)	MH758502	MH770950	MH770180	–	MH769935	MH770728	VI
<i>P. “fuscopraetextata”</i>	9	P2036	Chile: Region XII, Goffinet 10490 (CONN)	MH758505	MH770951	MH770181	MH770440	MH769936	MH770729	VI

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β-tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/ haplotype
<i>P. "fuscopraetextata"</i>	9	P2067	Chile: Region XII, <i>Wheeler & Nelson 6528</i> (CONC)	MH758506	MH770952	MH770182	MH770441	MH769937	MH770730	VI
<i>P. "fuscopraetextata"</i>	9	P2219	U.S.A.: OR, <i>McCune 30990</i> (OSC)	MH758508	—	MH770183	MH770442	MH769938	MH770731	VI
<i>P. "fuscopraetextata"</i>	9	P2223	U.S.A.: UT, <i>Truong 4016</i> (DUKE 0401863)	MH758509	MH770953	MH770184	MH770443	MH769939	MH770732	XXX
<i>P. granulosa</i> Sérus. & al.	6	P2176	Papua New Guinea, <i>Sérusiaux 15150</i> (LG)	MH758338	MH770877	MH770100	MH770357	MH769854	MH770637	V
<i>P. hymenina</i> (Ach.) Delise	OG	P430	Canada: NL, <i>Lendemmer 10397</i> (H)	—	KX880099	MF947046	MF946937	MF946831	—	N/A
<i>P. isidiophora</i> L.F.Han & S.Y.Guo	3	20423	China: Hebei, Han & al. 2015	KJ095108	—	—	—	—	—	N/A
<i>P. isidiophora</i> L.F.Han & S.Y.Guo	3	20421S1	China: Hebei, Han & al. 2015	KJ095106	—	—	—	—	—	N/A
<i>P. isidiophora</i> L.F.Han & S.Y.Guo	3	20421S2	China: Hebei, Han & al. 2015	KJ095107	—	—	—	—	—	N/A
<i>P. islandica</i> T.Goward & S.S.Manoharan-Basil	9	IC332	Iceland, <i>Andresson 332</i> (AMNH)	KJ413245	KJ413189	MH770227	MH770481	MH769981	—	N/A
<i>P. islandica</i> T.Goward & S.S.Manoharan-Basil	9	IC355	Iceland, <i>Manoharan-Basil 355</i> (AMNH)	KJ413244	KJ413192	MH770228	MH770482	MH769982	—	N/A
<i>P. kristinssonii</i> Vitik.	2	HOB1	Canada: BC, <i>O'Brien 020708-62-1-5</i> (DUKE)	FJ708952	FJ709345	MH770018	MH770265	—	—	N/A
<i>P. kristinssonii</i> Vitik.	2	HOB2	Canada: BC, <i>O'Brien 020708-70-5-9</i> (DUKE)	FJ708944	FJ709341	MH770019	MH770266	MH769765	—	N/A
<i>P. kristinssonii</i> Vitik.	2	P1112	Canada: BC, <i>Goward 11-16</i> (UBC)	MH758224	—	MH770020	MH770267	MH769766	MH770522	VI
<i>P. kristinssonii</i> Vitik.	2	P1292	Canada: QC, <i>Gagnon s.n.</i> (QFA-0594989)	MH758225	KM005796	MH770021	MH770268	MH769767	MH770523	VI
<i>P. laciniata</i> (G.Merr.) Gyeln. 1	6	P0026	Costa Rica, <i>Miadlikowska & Lutzoni 23-03-03-9</i> (DUKE 0401843)	MH758343	KM005815	MH770101	MH770358	MH769855	MH770638	XL
<i>P. laciniata</i> (G.Merr.) Gyeln. 1	6	P0040	Costa Rica, <i>Miadlikowska & Lutzoni 23-03-03-23</i> (DUKE 0401841)	MH758344	—	—	—	—	MH770639	XL
<i>P. laciniata</i> (G.Merr.) Gyeln. 1	6	P2050	Bolivia, <i>Kukwa 9194</i> (ex UGDA-L-17705, DUKE dupl. 0401840)	MH758339	—	—	—	—	MH770640	XL
<i>P. laciniata</i> (G.Merr.) Gyeln. 1	6	P2058	Ecuador, <i>Yanez-Anabaca 2556</i> (CDF)	MH758347	MH770878	MH770102	MH770359	MH769856	MH770641	XL
<i>P. laciniata</i> (G.Merr.) Gyeln. 1	6	P2075	Colombia, <i>Lücking 33693</i> (UDBC)	MH758341	MH770879	MH770103	MH770360	MH769857	MH770642	XL
<i>P. laciniata</i> (G.Merr.) Gyeln. 1	6	P2078	Colombia, <i>Coca and Patino s.n.</i> (FAUC)	MH758342	—	—	—	—	MH770643	unique
<i>P. laciniata</i> (G.Merr.) Gyeln. 1	6	P2198	Ecuador, <i>Truong 3956</i> (DUKE 0401842)	MH758350	MH770880	MH770104	MH770361	MH769858	MH770644	XL
<i>P. laciniata</i> (G.Merr.) Gyeln. 1	6	P2199	Ecuador, <i>Truong 3958</i> (DUKE 0401838)	MH758351	—	—	—	—	MH770645	XL
<i>P. laciniata</i> (G.Merr.) Gyeln. 2	6	P2051	Bolivia, <i>Kukwa 9562</i> (ex UGDA-L-17724, DUKE dupl. 0401839)	MH758340	MH770881	MH770105	MH770362	MH769859	MH770646	XL
<i>P. lepidophora</i> (Vain.) Bitter 1	6	P1844	Canada: BC, <i>Goward s.n.</i> (UBC)	MH758354	KM005810	—	MH770363	MH769860	MH770647	XXX
<i>P. lepidophora</i> (Vain.) Bitter 1	6	P2124	Iceland, <i>Kristinsson 49244</i> (AMNH LA-29491)	MH758353	MH770882	MH770106	MH770364	MH769861	MH770648	XXX

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β-tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/ haplotype
<i>P. lepidophora</i> (Vain.) Bitter 1	6	P2112	U.S.A.: NY, <i>Lendemer 12047</i> (NY 0154474)	MH758355	MH770883	MH770107	MH770365	MH769862	MH770649	XLI
<i>P. lepidophora</i> (Vain.) Bitter 2	6	P2101	U.S.A.: AK, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357968)	MH758352	MH770884	MH770108	MH770366	MH769863	MH770650	XXIV
<i>P. lepidophora</i> (Vain.) Bitter 2	6	NP23	China: Ningxia, <i>Niu 12-0085</i> (Ningxia Univ.)	MH758356	–	–	–	–	MH770651	XXX
<i>P. malacea</i> (Ach.) Funck	OG	P216	U.S.A.: AK, <i>Berg 3072</i> (UBC)	–	MH771011	MH770255	MH770506	–	–	N/A
<i>P. membranacea</i> (Ach.) Nyl. 1	8	HOB4	Canada: BC, <i>O'Brien 040605-10-1-1</i> (DUKE)	FJ709034	FJ709434	MH770159	MH770419	MH769913	–	N/A
<i>P. membranacea</i> (Ach.) Nyl. 1	8	HOB5	Canada: BC, <i>O'Brien 040605-1-2</i> (DUKE)	KC437646	FJ709435	–	–	–	–	N/A
<i>P. membranacea</i> (Ach.) Nyl. 1	8	HOB6	Canada: BC, <i>O'Brien 020708-0-9-1</i> (DUKE)	FJ709031	FJ709431	MH770160	MH770420	MH769914	–	N/A
<i>P. membranacea</i> (Ach.) Nyl. 1	8	P0003	Iceland, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357981)	MH758426	KM005814	MH770161	MH770421	MH769915	KX923102	XVI
<i>P. membranacea</i> (Ach.) Nyl. 1	8	P0086	Spain, <i>Vare L1807</i> (H)	MH758431	MH770932	MH770162	MH770422	MH769916	MH770712	XVI
<i>P. membranacea</i> (Ach.) Nyl. 1	8	P1005	Norway, <i>Magain s.n.</i> (LG)	MH758428	MH770933	–	MH770423	MH769917	MH770713	XIII
<i>P. membranacea</i> (Ach.) Nyl. 1	8	P2116	Canada: BC, <i>Truong s.n.</i> (DUKE 0401833)	MH758421	MH770934	MH770163	MH770424	MH769918	MH770714	XLIII
<i>P. membranacea</i> (Ach.) Nyl. 1	8	P2121	Portugal, <i>Vust 3084</i> (G)	MH758429	MH770935	MH770164	MH770425	MH769919	MH770715	XVI
<i>P. membranacea</i> (Ach.) Nyl. 1	8	P2122	France: Corsica, <i>Vust 6423</i> (G)	MH758422	MH770936	MH770165	MH770426	MH769920	MH770716	XVI
<i>P. membranacea</i> (Ach.) Nyl. 1	8	P2128	France: Corsica, <i>Vust 6405</i> (G)	MH758423	MH770937	MH770166	MH770427	MH769921	–	N/A
<i>P. membranacea</i> (Ach.) Nyl. 1	8	P2131	France, <i>Magain s.n.</i> (DUKE 0401819)	MH758424	MH770938	MH770167	MH770428	MH769922	–	N/A
<i>P. membranacea</i> (Ach.) Nyl. 1	8	P2191	Iceland, <i>Heidmarsson 2746</i> (AMNH LA-31754)	MH758427	MH770939	MH770168	MH770429	MH769923	MH770717	XVI
<i>P. membranacea</i> (Ach.) Nyl. 1	8	P2119	Greenland, <i>Vust 6432</i> (G)	MH758425	–	–	–	–	–	N/A
<i>P. membranacea</i> (Ach.) Nyl. 2	8	P2135	Russia: Khabarovsk Territory, <i>Miadlikowska & al. s.n.</i> (DUKE 0401812)	MH758430	MH770940	MH770169	MH770430	MH769924	–	N/A
<i>P. montis-wilhelmii</i> Sérus. & al. 1	7	P2156	Papua New Guinea, <i>Sérusiaux s.n.</i> (LG)	MH758382	MH770912	MH770134	MH770399	–	MH770690	V
<i>P. montis-wilhelmii</i> Sérus. & al. 2	7	P2157	Papua New Guinea, <i>Sérusiaux 13984</i> (LG)	MH758383	–	MH770135	–	–	MH770691	XXXI
<i>P. "neocanina"</i> 1	7	HOB24	Canada: BC, <i>O'Brien 020708-0-5-1</i> (DUKE)	FJ708922	FJ709443	–	–	–	–	N/A
<i>P. "neocanina"</i> 1	7	HOB25	Canada: BC, <i>O'Brien 020708-66-5-2</i> (DUKE)	FJ708916	FJ709444	–	–	–	–	N/A
<i>P. "neocanina"</i> 1	7	HOB26	Canada: BC, <i>O'Brien 020708-66-9-1</i> (DUKE)	FJ708917	FJ709438	–	MH770382	–	–	N/A
<i>P. "neocanina"</i> 1	7	HOB27	Canada: BC, <i>O'Brien 040605-2-2</i> (DUKE)	KC437635	MH770899	MH770120	MH770383	MH769875	KC437877	XXX
<i>P. "neocanina"</i> 1	7	P0070	U.S.A.: NM, <i>Hollinger 2460</i> (UBC)	MH758395	MH770900	–	–	–	KX923107	V
<i>P. "neocanina"</i> 1	7	P1107	Canada: BC, <i>Goward 11-37</i> (UBC)	MH758388	–	–	–	–	MH770672	XXX
<i>P. "neocanina"</i> 1	7	P2001	Canada: MB, <i>Ahti 63078</i> (H)	–	–	–	–	–	MH770673	V
<i>P. "neocanina"</i> 1	7	P2082	U.S.A.: NM, <i>Hollinger 2402</i> (UBC)	MH758396	–	–	–	–	MH770674	V

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β -tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/haplotype
<i>P. "neocanina" 1</i>	7	P2098	U.S.A.: AK, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401834)	MH758384	MH770901	MH770121	MH770384	MH769876	MH770675	XXXIX
<i>P. "neocanina" 1</i>	7	P2192	U.S.A.: AK, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401816)	—	MH770902	MH770122	MH770385	MH769877	MH770676	XXXIIIa
<i>P. "neocanina" 1</i>	7	P2212	Canada: BC, <i>Goward 5306</i> (UBC)	MH758385	MH770903	MH770123	MH770386	MH769878	MH770677	XXX
<i>P. "neocanina" 2</i>	7	P0068	U.S.A.: NM, <i>Hollinger 2401</i> (UBC)	MH758394	MH770904	MH770124	MH770387	MH769879	KX923106	XXX
<i>P. "neocanina" 2</i>	7	P2089	U.S.A.: CO, <i>King L286</i> (NY)	MH758397	MH770905	—	MH770388	MH769880	MH770678	XXX
<i>P. "neocanina" 2</i>	7	P2202	U.S.A.: UT, <i>Truong 3995</i> (DUKE 0401867)	MH758398	MH770906	MH770125	MH770389	MH769881	MH770679	XXX
<i>P. "neocanina" 3</i>	7	P1405	Russia: Krasnoyarsk Territory, <i>Miadlikowska & al. s.n.</i> (DUKE 0401821)	MH758390	MH770907	—	MH770390	MH769882	MH770680	V
<i>P. "neocanina" 3</i>	7	P1406	Russia: Krasnoyarsk Territory, <i>Miadlikowska s.n.</i> (DUKE 0401802)	MH758391	—	—	—	—	MH770681	V
<i>P. "neocanina" 3</i>	7	P1407	Russia: Krasnoyarsk Territory, <i>Miadlikowska s.n.</i> (DUKE 0401801)	MH758392	—	—	—	—	MH770682	V
<i>P. "neocanina" 3</i>	7	P1410	Russia: Krasnoyarsk Territory, <i>Miadlikowska s.n.</i> (DUKE 0401803)	MH758393	—	—	—	—	MH770683	V
<i>P. "neocanina" 3</i>	7	P2224	China: Yunnan, <i>Goffinet 9979</i> (CONN)	MH758386	MH770908	MH770126	MH770391	MH769883	MH770684	XXXIIc
<i>P. "neocanina" 4</i>	7	P0006	Iceland, <i>Miadlikowska & Lutzoni 08.08.10-5</i> (DUKE 0401832)	MH758387	MH770909	MH770127	MH770392	MH769884	MH770685	XLII
<i>P. "neocanina" 4</i>	7	P2232	Norway, <i>Goward 02-1480</i> (UBC)	MH758389	MH770910	MH770128	MH770393	MH769885	MH770686	V
<i>P. "neorufescens" 1</i>	6	P2061	Mexico, <i>Barcenas-Peña 1229</i> (MEXU)	MH758362	MH770862	MH770088	MH770343	MH769840	MH770614	unique
<i>P. "neorufescens" 1</i>	6	P2072	Costa Rica, <i>Miadlikowska & al. s.n.</i> (DUKE 0401820)	MH758360	MH770863	MH770089	MH770344	MH769841	MH770613	XXXVI
<i>P. "neorufescens" 2</i>	6	P2046	Bolivia, <i>Kukwa 8958</i> (ex UGDA-L-17704, DUKE dupl. 0401871)	MH758357	MH770864	MH770090	MH770345	MH769842	MH770614	VI
<i>P. "neorufescens" 2</i>	6	P2053	Peru, <i>Bennett s.n.</i> (WIS)	MH758363	MH770865	MH770091	MH770346	MH769843	MH770615	VI
<i>P. "neorufescens" 3</i>	6	P2184	Germany, Sipman 53601 (B 600127393)	MH758361	MH770866	MH770092	MH770347	MH769844	MH770616	unique
<i>P. "neorufescens" 4</i>	6	P2229	Canada: AB, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401823)	MH758359	MH770867	MH770093	MH770348	MH769845	MH770617	XXX
<i>P. "neorufescens" 5</i>	6	P2086	Canada: YT, <i>Lendemer 28945</i> (NY 0159332)	MH758358	MH770868	—	MH770349	MH769846	MH770618	XLI
<i>P. "neorufescens" 6</i>	6	P2205	U.S.A.: UT, <i>Truong 4023</i> (DUKE 0401868)	MH758364	MH770869	—	MH770350	MH769847	MH770619	XXXVIIIb
<i>P. "neorufescens" 6</i>	6	P2230	U.S.A.: OR, <i>Stone 8083.1</i> (DUKE 0158517)	MH758365	—	—	—	—	MH770620	XLI

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β -tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/haplotype
<i>P. papuana</i> Sérus. & al.	6	P1830=P2179	Papua New Guinea, <i>Sérusiaux 13656</i> (LG)	–	–	–	–	–	MH770652	XXXI
<i>P. papuana</i> Sérus. & al.	6	P2178	Papua New Guinea, <i>Sérusiaux 13655</i> (LG)	MH758366	MH770885	–	MH770367	–	MH770653	XXXI
<i>P. patagonica</i> Räsänen	2	P0076	Chile: Region XI, <i>Rubio 4077</i> (H)	MH758227	–	MH770022	MH770269	MH769768	KX923108	XXVIII
<i>P. patagonica</i> Räsänen	2	P2013	Chile: Region XII, <i>Stenroos 2427</i> (H)	MH758228	–	MH770023	MH770270	MH769769	MH770524	XXVIII
<i>P. patagonica</i> Räsänen	2	P2015	Chile: Region XII, <i>Tibell 18056</i> (UPS 74661)	–	–	–	–	–	MH770525	XXVIII
<i>P. patagonica</i> Räsänen	2	P2049	Argentina, <i>Tibell 17450</i> (UPS 40293)	MH758226	–	–	MH770271	–	MH770526	XXVIII
<i>P. polydactylon</i> (Neck.) Hoffm.	OG	P385	Norway; <i>Magain s.n.</i> (LG)	–	KM005765	KX365489	KX373621	KX373632	–	N/A
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 1a	5	P0084	U.S.A.: PA, <i>Lendemer 13556</i> (H)	MH758276	MH770833	MH770059	MH770309	MH769803	KX923111	XXXV
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 1a	5	P1106	Canada: BC, <i>Goward 7-187</i> (UBC)	MH758277	–	MH770060	–	MH769804	MH770571	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 1a	5	P1486	U.S.A.: ME, <i>Harris 55417</i> (NY 01103744)	MH758278	–	–	–	MH769806	MH770573	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 1a	5	P2003	Canada: MB, <i>Ahti 62717</i> (H)	MH758279	MH770834	–	MH770310	MH769807	MH770574	XXI
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 1a	5	P2028	U.S.A.: MO, <i>Harris 48184</i> (NY 01180306)	MH758280	MH770835	MH770062	MH770311	MH769808	MH770575	XXXV
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 1a	5	P2180	U.S.A.: OR, <i>McCune 29956</i> (OSC)	MH758281	MH770836	MH770063	MH770312	MH769809	MH770576	XXVII
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 1a	5	P2181	Canada: AB, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401809)	MH758282	MH770837	MH770064	MH770313	MH769810	MH770577	XXXIIIa
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 1a	5	P1108	Canada: BC, <i>Goward 07-234a</i> (UBC)	MH758283	–	MH770061	–	MH769805	MH770572	XXVII
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 1b	5	P2204	U.S.A.: UT, <i>Truong 4045</i> (DUKE 0401866)	MH758284	MH770838	MH770065	MH770314	MH769811	MH770578	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 2	5	P2004	Germany, <i>Türk 34539</i> (H)	MH758285	MH770839	–	MH770315	MH769812	MH770579	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 2	5	P2132	France, <i>Magain s.n.</i> (LG)	MH758286	MH770840	MH770066	MH770316	MH769813	–	N/A
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 2	5	P2175	Switzerland, <i>Vust 1687</i> (G)	MH758287	MH770841	MH770067	MH770317	MH769814	MH770580	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 3	5	HOB28	Canada: BC, <i>O'Brien 020708-62-1-3</i> (DUKE)	FJ709039	FJ709448	–	–	–	–	N/A

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β -tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/haplotype
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 4	5	P0444	U.S.A.: KS, <i>Buck 46381</i> (NY 881403)	MH758288	MH770842	–	MH770318	MH769815	MH770581	XXXIV
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 4	5	P2027	U.S.A.: MO, <i>Harris 45692</i> (NY)	MH758289	MH770843	MH770068	MH770319	MH769816	MH770582	XXXIV
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 4	5	P2029	U.S.A.: AR, <i>Buck 46600</i> (NY 0050439)	MH758290	MH770844	MH770069	MH770320	MH769817	MH770583	XXXIV
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 4	5	P2085	U.S.A.: AR, <i>Majestyk 8060</i> (DUKE 0401845)	MH758291	MH770845	MH770070	MH770321	MH769818	MH770584	XXI
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 5a	5	P0192	India: Uttarakhand, <i>Divakar s.n.</i> (MAF)	MH758293	MH770846	MH770071	MH770322	MH769819	MH770585	XXXII
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 5a	5	P1287	China: Yunnan, <i>Rosentreter 15</i> (DUKE 0401846)	MH758292	MH770847	MH770072	MH770323	MH769820	MH770586	XXXVII
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 5b	5	HOB29	Canada: BC, <i>O'Brien 020708-70-1-4</i> (DUKE)	FJ709040	FJ709449	–	MH770324	MH769821	–	N/A
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 6	5	NP18	China: Ningxia, <i>Niu 12-0015</i> (Ningxia Univ.)	–	–	–	–	–	MH770587	XXXVIb
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 6	5	NP19	China: Ningxia, <i>Niu 12-0016</i> (Ningxia Univ.)	–	–	–	–	–	MH770588	XXXVIb
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 6	5	P0834	Norway, <i>Magain s.n.</i> (LG)	MH758294	–	–	MH770325	MH769822	–	N/A
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 6	5	P2167	China: Yunnan, <i>Miadlikowska s.n.</i> (DUKE 0401815)	MH758295	MH770848	–	MH770326	MH769823	MH770589	XXXIIc
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 7	5	P0075	Norway, <i>Ahti 65831</i> (H)	MH758296	KM005825	MH770073	MH770327	MH769824	KX923104	XLII
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 7	5	P2220	U.S.A.: CA, <i>McCune 30357</i> (OSC)	MH758297	MH770849	MH770074	MH770328	MH769825	MH770590	unique
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 8	5	P2087	U.S.A.: UT, <i>Buck 55054</i> (NY01136425)	MH758298	MH770850	MH770075	MH770329	MH769826	MH770591	XXXVIIIb
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 8	5	P2185	Canada: BC, <i>Goward 5302</i> (UBC)	MH758299	MH770851	MH770076	MH770330	MH769827	MH770592	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 8	5	P2206	U.S.A.: UT, <i>Truong 4048</i> (DUKE 040189)	MH758300	–	MH770077	MH770331	MH769828	MH770593	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 8	5	P2207	U.S.A.: UT; <i>Truong 4027</i> (DUKE 0401847)	MH758301	–	–	–	–	MH770594	XXX

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β -tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/ haplotype
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 8	5	P2208	U.S.A.: UT, <i>Truong 4001</i> (DUKE 0401848)	MH758302	MH770852	MH770078	MH770332	MH769829	MH770595	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 8	5	P2210	U.S.A.: UT, <i>Truong 4011</i> (DUKE 0401850)	MH758303	–	–	–	–	MH770596	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 8	5	P2214	Canada: BC, <i>Goward 5300</i> (UBC)	MH758305	MH770853	MH770079	MH770333	MH769830	MH770597	VI
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 8	5	P2215	U.S.A.: OR, <i>Hardman s.n.</i> (DUKE 0158521)	MH758304	MH770854	MH770080	MH770334	MH769831	MH770598	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 9	5	NP20	China: Ningxia, <i>Niu 12-0005</i> (Ningxia Univ.)	MH758307	MH770855	MH770081	MH770335	MH769832	MH770599	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 9	5	NP21	China: Ningxia, <i>Niu 12-0004</i> (Ningxia Univ.)	MH758306	–	–	–	–	MH770600	unique
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 9	5	P0073	Austria, <i>Türk 37593</i> (H)	MH758310	KM005824	MH770082	MH770336	MH769833	KX923103	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 9	5	P0419	Russia: Dagestan, <i>Urbanavichus 0902150</i> (H)	MH758308	MH770856	–	MH770337	MH769834	MH770590	XXX
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 9	5	P2127	Switzerland, <i>Vust s.n.</i> (G)	MH758309	MH770857	MH770083	MH770338	MH769835	MH770591	V
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 10a	5	P2000	U.S.A.: CA, <i>Arnold 73</i> (YOSE 221393)	MH758311	MH770829	–	MH770305	MH769799	MH770567	unique
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 10a	5	P2168	U.S.A.: CA, <i>McCune 28024</i> (OSC)	MH758313	MH770830	MH770056	MH770306	MH769800	MH770568	unique
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 10a	5	P2187	U.S.A.: CA, <i>McCune 29670</i> (OSC)	MH758314	MH770831	MH770057	MH770307	MH769801	MH770569	VI
<i>P. ponojensis</i> Gyeln./ <i>monticola</i> Vitik. 10b	5	P2114	U.S.A.: UT, <i>Truong & Magain s.n.</i> (DUKE 0357983)	MH758312	MH770832	MH770058	MH770308	MH769802	MH770570	XXX
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf	9	HOB18	Canada: BC, <i>O'Brien 030611-0-0-5</i> (DUKE)	FJ708905	FJ709451	MH770229	MH770483	MH769983	–	N/A
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf	9	HOB19	Canada: BC, <i>O'Brien 020708-31-9-2</i> (DUKE)	FJ708904	FJ709450	MH770230	MH770484	MH769984	–	N/A
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf	9	HOB20	Canada: BC, <i>O'Brien 030611-0-5-8</i> (DUKE)	FJ708906	FJ709452	–	–	–	–	N/A
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf	9	P0420	Serbia, <i>Uotila 48419</i> (H)	MH758520	–	–	–	MH769985	MH770788	V

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β -tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/haplotype
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P0570	Norway, <i>Magain s.n.</i> (LG)	MH758515	KM005829	MH770231	MH770485	MH769986	MH770789	XLII
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P0622	Norway, <i>Magain s.n.</i> (LG)	MH758516	MH770995	MH770232	MH770486	MH769987	–	N/A
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P0842	Norway, <i>Magain s.n.</i> (LG)	MH758517	–	–	–	–	MH770790	XLII
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P1514	China: Yunnan, <i>Miadlikowska s.n.</i> (DUKE 0357962)	MH758512	–	–	–	–	MH770791	XXXIIa
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P1515	China: Yunnan, <i>Miadlikowska s.n.</i> (DUKE 0357961)	MH758513	MH770996	MH770233	MH770487	MH769988	MH770792	XXXIIa
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P2025	Russia: Karachaevo-Cherkesiya Republic, <i>Zhurbenko s.n.</i> (DUKE 0357996)	MH758518	MH770997	MH770234	MH770488	MH769989	MH770793	V
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P2088	U.S.A.: NY, <i>Buck 54040</i> (NY 01077051)	MH758521	MH770998	MH770235	MH770489	MH769990	MH770794	V
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P2091	Canada: ON, <i>Harris 56462</i> (DUKE 0159321)	MH758510	MH770999	MH770236	–	–	–	N/A
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P2092	U.S.A.: ME, <i>Harris 53056</i> (DUKE 0138948)	MH758522	MH771000	MH770237	MH770490	MH769991	MH770795	V
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P2096	India: Himachal Pradesh, <i>Divakar s.n.</i> (MAF)	MH758514	MH771001	–	MH770491	MH769992	MH770796	XXXIIa
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P2226	U.S.A.: MI, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357993)	MH758523	MH771002	MH770238	MH770492	MH769993	MH770797	V
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P2227	Russia: Khabarovsk Territory, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401831)	MH758519	MH771003	MH770239	MH770493	MH769994	MH770798	V
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P2231	Canada: AB, J. <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357995)	MH758511	–	–	–	–	MH770799	V
<i>P. praetextata</i> (Flörke ex Sommerf.) 9 Zopf		P2233	U.S.A.: AZ, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401835)	MH758524	MH771004	MH770240	MH770494	MH769995	MH770800	XXXVI
<i>P. retifoveata</i> Vitik.	1	P0074	Russia: Sakha Republic, <i>Ahti 61821</i> (H)	MH758213	–	MH770010	MH770257	MH769757	MH770508	XXXIIIa
<i>P. retifoveata</i> Vitik.	1	P1839= P1030	Norway, <i>Magain s.n.</i> (LG)	MH758214	–	–	–	–	MH770509	XXXIIIa
<i>P. retifoveata</i> Vitik.	1	P2100	U.S.A.: AK, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357984)	MH758215	–	MH770011	MH770258	MH769758	MH770510	XXXIIIa
<i>P. rufescens</i> (Weiss) Humb. 1	6	P1111	Canada: BC, <i>Goward 10-71</i> (UBC)	MH758369	–	–	–	–	MH770654	XXX
<i>P. rufescens</i> (Weiss) Humb. 1	6	P2002	Denmark, <i>Hansen s.n.</i> (H)	MH758368	MH770886	–	MH770368	MH769864	MH770655	XXV

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β -tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/ haplotype
<i>P. rufescens</i> (Weiss) Humb. 1	6	P2043	Chile: Region XII, <i>Goffinet 7076</i> (CONN)	MH758367	MH770887	MH770109	MH770369	MH769865	MH770656	XXV
<i>P. rufescens</i> (Weiss) Humb. 1	6	P2083	U.S.A.: NC, <i>Hollinger 2711</i> (UBC)	MH758370	MH770888	MH770110	MH770370	MH769866	MH770657	XXXV
<i>P. rufescens</i> (Weiss) Humb. 1	6	P2203	U.S.A.: UT, <i>Truong 4044</i> (DUKE 0401869)	–	MH770889	MH770111	MH770371	MH769867	MH770658	XXXIII
<i>P. rufescens</i> (Weiss) Humb. 2	6	P2071	Costa Rica, <i>Miadlikowska & Lutzoni 23.03.03-3</i> (DUKE 0401870)	MH758371	MH770890	–	MH770372	MH769868	MH770659	XL
<i>P. rufescentiformis</i> (Gyeln.) C.W.Dodge	6	P2142	Kenya, <i>Moberg 3983</i> (UPS L-536565)	MH758372	–	MH770112	MH770373	–	MH770660	XXXIX
<i>P. rufescentiformis</i> (Gyeln.) C.W.Dodge	6	P2143	Kenya, <i>Moberg 4324</i> (UPS L-536552)	MH758373	MH770891	MH770113	MH770374	–	MH770661	XXXVII
<i>P. scabrosa</i> Th. Fr.	OG	P107	Canada: QC, <i>Lutzoni & al. s.n.</i> (DUKE 0401873)	–	KM005791	–	MF947024	MF946916	–	N/A
<i>P. soredians</i> Vitik.	6	P2020	Ecuador, <i>Kalb 39784</i> (DUKE)	MH758346	–	–	–	–	MH770662	XXVIc
<i>P. soredians</i> Vitik.	6	P2068	Costa Rica, <i>Miadlikowska & Lutzoni 22.03.03-2</i> (DUKE 0401844)	MH758345	–	–	–	–	MH770663	XL
<i>P. soredians</i> Vitik.	6	P2151	Ecuador, <i>Kalb 39787</i> (DUKE)	MH758348	MH770892	MH770114	MH770375	–	MH770664	XL
<i>P. soredians</i> Vitik.	6	P2152	Ecuador, <i>Kalb 39785</i> (DUKE)	MH758349	MH770893	MH770115	MH770376	MH769869	MH770665	XXVIc
<i>P. sorediifera</i> (Nyl.) Vitik.	4	P2146	Australia, NSW, <i>Streimann 50996</i> (H)	MH758255	–	MH770041	MH770290	MH769786	MH770550	V
<i>P. sorediifera</i> (Nyl.) Vitik.	4	P2173	Australia: ACT, <i>Streimann & Curnow 34999</i> (ex CBG- 9507177 dupl. H)	MH758256	–	MH770042	MH770291	–	MH770551	V
<i>P. sp.</i>	6	NP31	China: Ningxia, <i>Niu 12-0064</i> (Ningxia Univ.)	–	–	–	–	–	MH770666	XXX
<i>P. sp. 13</i>	1	P2225	China: Yunnan, <i>Goffinet 9974</i> (CONN)	MH758216	–	MH770012	–	MH769759	MH770511	VIIIa
<i>P. sp. 14</i>	2	P1534	Chile: Region XII, <i>Buck 47968</i> (NY)	MH758217	MH770817	–	MH770272	–	MH770527	XXIII
<i>P. sp. 14</i>	2	P2039	Chile: Region XII, <i>Shaw 17848</i> (DUKE 0401861)	MH758218	MH770818	MH770024	MH770273	MH769770	MH770528	XXIII
<i>P. sp. 14</i>	2	P2062	Chile: Region X, <i>Wheeler & Nelson 5191</i> (CONC)	MH758219	MH770819	–	MH770274	MH769771	MH770529	XXIII
<i>P. sp. 15</i>	6	P0432	Ecuador, <i>Frisch 96/Eq101</i> (H)	MH758375	MH770894	MH770116	MH770377	MH769870	MH770667	XL
<i>P. sp. 15</i>	6	P2153	Colombia, <i>Lücking 34027</i> (UDBC)	MH758374	MH770895	MH770117	MH770378	MH769871	MH770668	XL
<i>P. sp. 16</i>	2	P2186	U.S.A.: OR, <i>McCune 31966</i> (OSC)	MH758235	–	MH770025	MH770275	MH769772	MH770530	XXX
<i>P. sp. 17</i>	5	P1472	Peru, <i>Miadlikowska s.n.</i> (DUKE)	MH758316	–	–	–	–	MH770603	XXVIb
<i>P. sp. 17</i>	5	P1473	Peru, <i>Lutzoni 05.22.2012-1</i> (DUKE 0357994)	MH758317	–	–	–	–	MH770604	XXVIb
<i>P. sp. 17</i>	5	P1475	Peru, <i>Miadlikowska s.n.</i> (DUKE)	–	–	–	–	–	MH770605	XXVIb

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β -tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/ haplotype
<i>P. sp. 17</i>	5	P1476	Peru, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357963)	MH758318	–	–	–	–	MH770606	unique
<i>P. sp. 17</i>	5	P1477	Peru, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357964)	MH758319	–	–	–	–	MH770607	unique
<i>P. sp. 17</i>	5	P1728	Peru, <i>Lutzoni 05.22.2012-8</i> (DUKE 0401804)	MH758320	MH770858	MH770084	MH770339	MH769836	MH770610	XXVIb
<i>P. sp. 17</i>	5	P2164	Peru, <i>Miadlikowska s.n.</i> (DUKE 0357990)	MH758321	MH770859	MH770085	MH770340	MH769837	MH770611	XXVIb
<i>P. sp. 17</i>	5	P2165	Peru, <i>Lutzoni s.n.</i> (DUKE 0401811)	–	MH770860	MH770086	MH770341	MH769838	MH770612	XXVIb
<i>P. sp. 17</i>	5	P2195	Ecuador, <i>Truong 3976</i> (DUKE 0401864)	MH758315	MH770861	MH770087	MH770342	MH769839	MH770613	XXXIX
<i>P. sp. 18</i>	9	P1413	Russia: Krasnoyarsk Territory, <i>Zhurbenko s.n.</i> (DUKE 0357978)	MH758527	MH771005	MH770241	–	MH769996	MH770801	V
<i>P. sp. 18</i>	9	P2094	India: Uttarakhand, <i>Divakar s.n.</i> (MAF)	MH758526	MH771006	MH770242	MH770495	MH769997	MH770802	XXXII
<i>P. sp. 19</i>	9	P0078	U.S.A.: OR, <i>McCune 31048</i> (OSC)	MH758528	MH771007	MH770243	MH770496	MH769998	MH770803	VI
<i>P. sp. 19</i>	9	P1230	U.S.A.: OR, <i>McCune 26686</i> (OSC)	MH758529	MH771008	MH770244	MH770497	MH769999	MH770804	VI
<i>P. sp. 19</i>	9	P2030	U.S.A.: OR, <i>McCune 30122</i> (OSC)	MH758530	MH771009	MH770245	MH770498	MH770000	MH770805	VI
<i>P. sp. 20</i>	9	HOB14	Canada: BC, <i>O'Brien 030611-10-0-4</i> (DUKE)	FJ708909	FJ709455	MH770246	MH770499	MH770001	KC437728	VI
<i>P. sp. 20</i>	9	HOB15	Canada: BC, <i>O'Brien 020708-62-1-1</i> (DUKE)	FJ708907	FJ709453	MH770247	MH770500	MH770002	–	N/A
<i>P. sp. 20</i>	9	HOB16	Canada: BC, <i>O'Brien 020708-66-1-4</i> (DUKE)	FJ708908	FJ709454	MH770248	MH770501	MH770003	–	N/A
<i>P. sp. 20</i>	9	HOB17	Canada: BC, <i>O'Brien 030611-10-5-3</i> (DUKE)	FJ708910	FJ709456	MH770249	–	MH770004	–	N/A
<i>P. sp. 21</i>	9	P2218	U.S.A.: AZ, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0401825)	MH758525	MH771010	MH770250	MH770502	MH770005	MH770806	XXXVI
<i>P. sp. 22</i>	9	P1841	Colombia, <i>Lücking MPNNC174</i> (UDBC)	MH758496	–	–	–	–	MH770808	XXXIX
<i>P. sp. 22</i>	9	P0926	Colombia, <i>Lücking MPNNC122</i> (UDBC)	MH758495	–	MH770251	MH770503	MH770006	MH770807	VI
<i>P. sp. 22</i>	9	P2054	Peru, <i>Bennett s.n.</i> (WIS)	MH758498	–	MH770252	–	MH770007	MH770809	XXXIXd
<i>P. sp. 22</i>	9	P2074	Peru, <i>Miadlikowska s.n.</i> (DUKE 0357976)	MH758499	–	MH770253	MH770504	–	MH770810	XXXIX
<i>P. sp. 22</i>	9	P2077	Colombia, <i>Lücking MPNNC92m</i> (UDBC)	MH758497	–	MH770254	MH770505	MH770008	MH770811	XXXIX
<i>P. spuriella</i> Vain.	6	P1648	Peru, <i>Maldonado 14</i> (NY)	MH758329	MH770871	MH770095	MH770352	MH769849	MH770627	unique
<i>P. spuriella</i> Vain.	6	P1731	Peru, <i>Lutzoni s.n.</i> (DUKE)	MH758336	–	–	–	–	MH770636	unique
<i>P. tereziana</i> Gyeln.	8	P0433	Australia: VIC, <i>Streimann 50914</i> (H)	MH758432	MH770941	MH770170	MH770431	MH769925	MH770718	XX
<i>P. tereziana</i> Gyeln.	8	P2021	Australia: ACT, <i>Kalb 30730</i> (DUKE)	MH758433	MH770942	MH770171	MH770432	MH769926	MH770719	XX
<i>P. tereziana</i> Gyeln.	8	P2155	New Zealand, <i>Tibell 9563</i> (UPS L-536309)	MH758437	MH770943	–	–	–	–	N/A
<i>P. tereziana</i> Gyeln.	8	P2171	Australia: NSW, <i>Streimann 63484</i> (CANB 604582.1)	MH758434	MH770944	MH770172	MH770433	MH769927	MH770720	XX

Table S1. Continued.

Taxon	Clade	DNA id.	Voucher/Published source	ITS	β -tubulin	COR1b	COR3	COR16	<i>rbcLX</i>	<i>rbcLX</i> phylogroup/ haplotype
<i>P. tereziana</i> Gyeln.	8	P2172	Australia: NSW, <i>Streimann 60382</i> (CBG 9906411)	MH758435	MH770945	MH770173	MH770434	MH769928	MH770721	XX
<i>P. tereziana</i> Gyeln.	8	P2174	Australia: VIC, <i>Elix 39629</i> (CANB 00792024)	MH758436	MH770946	MH770174	MH770435	MH769929	MH770722	XX
<i>P. ulcerata</i> Müll. Arg.	4	P1852	Philippines, <i>Kalb & Schrogl s.n.</i> (DUKE)	MH758266	–	–	–	–	–	N/A
<i>P. ulcerata</i> Müll. Arg. 1	4	P0041	Costa Rica, <i>Miadlikowska & Lutzoni 23.03.03-24</i> (DUKE 0357988)	MH758262	–	–	–	–	MH770553	XXXIX
<i>P. ulcerata</i> Müll. Arg. 1	4	P0043	Costa Rica, <i>Miadlikowska & Lutzoni 23.03.03-26</i> (DUKE 0357989)	MH758263	–	–	–	–	KX923115	XXXIXb
<i>P. ulcerata</i> Müll. Arg. 1	4	P0048	Costa Rica, <i>Miadlikowska & Lutzoni 23.03.03-31</i> (DUKE 0357987)	MH758264	–	MH770043	MH770292	MH769787	MH770554	XXXIXc
<i>P. ulcerata</i> Müll. Arg. 1	4	P2063	Chile: Region X, <i>Wheeler & Nelson 5444</i> (CONC)	MH758259	–	MH770044	MH770293	MH769788	MH770555	V
<i>P. ulcerata</i> Müll. Arg. 1	4	P2105	Peru, <i>Lutzoni s.n.</i> (DUKE 0357986)	MH758265	–	MH770045	MH770294	MH769789	MH770556	unique
<i>P. ulcerata</i> Müll. Arg. 1	4	P2148	Colombia, <i>Lücking DNA1190</i> (UDBC)	MH758260	–	MH770046	MH770295	MH769790	MH770557	XXXIXc
<i>P. ulcerata</i> Müll. Arg. 1	4	P0033	Costa Rica, <i>Miadlikowska & Lutzoni 23-03-03-16</i> (DUKE 0357992)	MH758261	–	–	–	–	MH770552	XXXIX
<i>P. ulcerata</i> Müll. Arg. 2	4	P2154= P1838	Brazil: Rio, <i>Marcelli & al. 25096</i> (H)	MH758258	–	MH770047	MH770296	MH769791	MH770558	N/A
<i>P. ulcerata</i> Müll. Arg. 2	4	P2216	Australia: NSW, <i>Elix 35980</i> (ex CBG 9616513 dupl. H)	MH758257	–	MH770048	MH770297	MH769792	MH770559	V
<i>P. vainioi</i> Gyeln.	4	P2080	Colombia, <i>Aguirre & Sipman 5570</i> (B)	MH758267	–	–	–	–	MH770560	XXVIa
<i>P. vainioi</i> Gyeln.	4	P2115	Colombia, <i>Miadlikowska s.n.</i> (ANDES)	MH758268	–	MH770049	MH770298	MH769793	MH770561	XXVIa
<i>P. vainioi</i> Gyeln.	4	P2196	Ecuador, <i>Truong 3983</i> (DUKE 0401860)	MH758269	–	MH770050	MH770299	MH769794	MH770562	XXVIa
<i>P. wulingensis</i> L.F.Han & S.Y.Guo	6	P1348	Canada: QC, <i>Gagnon s.n.</i> (QFA 0595019)	MH758377	MH770896	–	MH770379	MH769872	MH770669	XXXIIIb
<i>P. wulingensis</i> L.F.Han & S.Y.Guo	6	P2031	Russia: Krasnoyarsk Territory, <i>Miadlikowska s.n.</i> (DUKE 0357978)	MH758378	MH770897	MH770118	MH770380	MH769873	MH770670	XXXIIIb
<i>P. wulingensis</i> L.F.Han & S.Y.Guo	6	P2188	Canada: AB, <i>Miadlikowska & Lutzoni s.n.</i> (DUKE 0357979)	MH758376	MH770898	MH770119	MH770381	MH769874	MH770671	V

Table S2. Support values for species delimitations resulting from bGMYC analyses on each locus of each clade analyzed separately, and for bPTP analyses on the concatenated dataset, for clades 4–9. NA (not applicable) indicates species that were not represented in the matrix, whereas slash indicates species, which were not delimited for a given locus. alt = alternative.

Clade 4/ <i>Peltigera</i>	Specimen	ITS	β -tubulin	COR1b	COR3	COR16	bPTP
<i>vainioi</i>	P2115, P2196	0.92	NA	0.98	0.92	0.89	0.99
<i>extenuata</i> 1	P2064, P2104, P2103, P2111	0.79	NA	0.85	0.39	0.67	0.99
<i>extenuata</i> 1b	P2064	/	NA	/	0.47	/	/
<i>extenuata</i> 2	P0943, P2057	0.91	NA	0.93	0.6	0.82	/
<i>didactyla</i> 1	P2140, P2144, P2200	0.56	NA	0.79	0.43		0.86
<i>didactyla</i> 3	P2110, P2109	0.66	NA	0.94	NA	0.88	0.99
<i>castanea</i>	P2102	0.71	NA	0.96	0.92	NA	1
<i>didactyla</i> 2	NP2	0.65	NA	0.95	0.73	NA	1
<i>sorediifera</i>	P2146, P2173	0.42	NA	0.94	0.76	0.8	0.99
<i>ulcerata</i> 2	P2216, P2154	/	NA	0.25	/	/	0.84
<i>ulcerata</i> 2 alt1	P2154	0.69	NA	0.23	0.64	0.6	/
<i>ulcerata</i> 2 alt2	P2216	/	NA	0.23	0.77	0.47	/
<i>ulcerata</i> 1	P2063, P2148, P0048, P2105	/	NA	/	/	/	0.79
<i>ulcerata</i> 1 alt1	P2063, P2148, P0048, P2105, P2216	0.45	NA	/	/	/	/
Clade 5/ <i>Peltigera</i>	Specimen	ITS	β -tubulin	COR1b	COR3	COR16	bPTP
<i>ponojensis/monticola</i> 6	P2167, P0834	0.55	0.76	NA	0.55	0.88	0.93
<i>ponojensis/monticola</i> 7	P2220, P0075	0.93	0.35	0.61	0.75	0.57	0.91
<i>ponojensis/monticola</i> 8	P2215, P2185, P2087, P2208, P2206, P2214	/	0.62	0.36	/	0.74	0.79
<i>ponojensis/monticola</i> 8 alt4	P2185, P2087, P2208, P2206, P2214	/	/	/	0.37	/	/
<i>ponojensis/monticola</i> 8 alt3	P2215, P2185, P2087, P2208, P2214	/	/	0.36	/	/	/
<i>ponojensis/monticola</i> 8 alt1	P2185, P2214, P2215	0.7	/	/	/	/	/
<i>ponojensis/monticola</i> 8 alt2	P2087, P2208, P2206	0.45	/	/	/	/	/
<i>ponojensis/monticola</i> 9	P0419, P2127, P0073, NP20	0.81	0.4	0.46	0.67	0.52	0.9
<i>ponojensis/monticola</i> 1a+1b	P2204, P2028, P2181, P1106, P2003, P1108, P0084, P1486, P2180	/	/	/	/	/	0.75
<i>ponojensis/monticola</i> 1b	P2204	/	0.21	0.36	/	/	/
<i>ponojensis/monticola</i> 2	P2004, P2175, P2132	/	0.19	0.37	0.2	0.75	0.82
<i>antarctica</i>	P0077, P2065, P2044, P0442, P2034, P1805	/	/	0.32	0.2	/	0.6
<i>antarctica</i> 1	P2065, P2044, P0442, P2034, P1805	0.42	/	/	/	0.36	/
<i>ponojensis/monticola</i> 3	HOB28	0.91	0.43	NA	NA	NA	0.97
<i>ponojensis/monticola</i> 5b	HOB29	/	0.33	0.47	/	/	0.87
<i>ponojensis/monticola</i> 5a	P0192, P1287	/	0.35	0.46	/	/	0.8
<i>ponojensis/monticola</i> 5a+5b	P0192, P1287, HOB29	0.86	/	/	0.76	0.71	/
sp. 17	P2165, P1728, P2164, P2195	0.62	0.57	/	0.4	0.84	/
sp. 17 alt1	P2165, P1728	/	/	0.42	0.41	/	0.58
sp. 17 alt2	P2164, P2195	/	/	0.41	/	/	0.59
<i>ponojensis/monticola</i> 10	P2000, P2187, P2168, P2114	/	0.53	/	/	0.53	/
<i>ponojensis/monticola</i> 10a	P2000, P2187, P2168	0.8	/	0.43	0.31	/	/
<i>ponojensis/monticola</i> 10b	P2114	0.86	/	0.51	0.47		0.73
<i>ponojensis/monticola</i> 10a alt1	P2000, P2187	/	/	/	/	/	0.49
<i>ponojensis/monticola</i> 10a alt2	P2168	/	/	/	/	/	0.53
<i>ponojensis/monticola</i> 4a	P0444, P2029	0.6	/	/	/	/	0.57

Table S2. Continued.

<i>ponojensis/monticola</i> 4b	P2027, P2085	0.62	/	/	/	/	0.56
<i>ponojensis/monticola</i> 4	P0444, P2029, P2027, P2085	/	0.54	0.7	0.88	0.84	/
Clade 6/ <i>Peltigera</i>	Specimen	ITS	β -tubulin	COR1b	COR3	COR16	bPTP
<i>soredians</i>	P2151, P2152	0.39	0.62	0.87	0.89	0.43	0.96
sp. 15	P2153, P0432	0.39	0.58	/	0.47	0.39	0.96
<i>wulingensis</i>	P2188, P1348, P2031	0.48	0.69	0.68	0.87	/	0.94
<i>rufescentiformis</i>	P2142, P2143	0.62	0.4	0.97	0.92	/	0.97
<i>granulosa</i> + <i>papuana</i>	P2176, P2178	/	/	/	/	/	0.97
<i>granulosa</i>	P2176, P2178	0.39	0.44	0.85	0.63	0.74	/
<i>papuana</i>	P2178	0.34	0.44	NA	0.63	NA	/
<i>laciniata</i> 2	P2051	/	0.32	0.73	0.72	0.29	1
<i>laciniata</i> 1	P2075, P2058, P2198, P0026	/	0.32	0.62	0.72	0.29	0.96
<i>laciniata</i> 1+2	P2075, P2058, P2198, P0026, P2051	0.34	/	/	/	/	/
“ <i>neorufescens</i> ” 6	P2205	0.95	0.83	NA	0.91	0.8	1
“ <i>neorufescens</i> ” 1–5	P2046, P2229, P2072, P2184, P2061, P2053, P2086	/	0.33	/	/	0.43	/
“ <i>neorufescens</i> ” 1–4	P2046, P2229, P2072, P2184, P2061, P2053	0.57	/	/	/	/	
“ <i>neorufescens</i> ” 2	P2046, P2053	/	/	0.5	0.53	/	0.97
“ <i>neorufescens</i> ” 1	P2072, P2061	/	/	0.4	0.33	/	0.97
“ <i>neorufescens</i> ” 1+3	P2072, P2061, P2184	/	/	/	0.35	/	/
“ <i>neorufescens</i> ” 3	P2184	/	/	0.51	0.33	/	1
“ <i>neorufescens</i> ” 4	P2229	/	/	0.75	0.36	/	1
“ <i>neorufescens</i> ” 5	P2086	0.3	/	/	0.41	/	1
<i>lepidophora</i> 2	P2101	0.91	0.58	0.91	0.97	0.72	1
<i>lepidophora</i> 1a	P2124, P1844	/	/	/	/	/	0.95
<i>lepidophora</i> 1b	P2112	/	/	/	/	/	0.98
<i>lepidophora</i> 1	P2124, P1844, P2112	0.92	0.51	0.52	0.66	0.69	/
<i>rufescens</i> 2	P2071	0.46	0.44	/	0.88	/	1
<i>rufescens</i> 1	P2043, P2002, P2203, P2083	0.41	0.36	0.54	0.88	0.37	0.96
<i>friesiorum</i>	P2045, P1647, P2006, P2007, P2035, P1739, P1648	0.6	0.57	0.43	0.85	0.29	/
<i>friesiorum</i> a	P2045, P1647, P2006, P2007, P2035, P1739	/	/	0.44	/	/	0.71
<i>spuriella</i>	P1648	/	/	0.44	/	/	0.97
<i>fimbriata</i>	FJ527272, FJ527273, FJ527274	0.87	NA	NA	NA	NA	NA
Clade 7/ <i>Peltigera</i>	Specimen	ITS	β -tubulin	COR1b	COR3	COR16	bPTP
<i>cinnamomea</i>	P2141, HOB21, HOB22, HOB23	0.68	0.5	0.71	0.63	0.54	0.72
<i>erioderma</i>	P2162, P2163	/	0.87	/	/	1	/
<i>erioderma</i> 1	P2162	0.74	/	0.91	0.91	/	/
<i>erioderma</i> 2	P2163	0.62	/	0.91	0.93	/	/
<i>montis-wilhelmii</i>	P2156, P2157	0.37	0.87	/	0.94	NA	0.98
<i>montis-wilhelmii</i> 1	P2156	0.43	/	0.81	/	/	/
<i>montis-wilhelmii</i> 2	P2157	0.43	/	0.81	/	/	/
“ <i>neocanina</i> ” 1	P0070, P2192, P2212, P2098, HOB26, HOB27	0.44	/	0.36	/	/	0.93
“ <i>neocanina</i> ” 2	P0068, P2202, P2089	0.28	/	0.45	0.25	0.38	0.86
“ <i>neocanina</i> ” 3	P2224, P1405	0.34	0.33	0.49	0.25	0.29	0.97

Table S2. Continued.

“neocanina” 3a	P2224	/	/	/	0.41	/	/
“neocanina” 3b	P1405	/	/	/	0.41	/	/
“neocanina” 4	P2232, P0006	0.56	0.73	0.52	0.53	0.54	0.97
“neocanina” 1b	P2098	/	0.38	/	/	/	/
Clade 8/ <i>Peltigera</i>	Specimen	ITS	β -tubulin	COR1b	COR3	COR16	bPTP
<i>degenii</i> 1	P2108, P2129, P2133, P2170, P2130, P0523, P0586, P0563	0.7	0.82	0.56	0.77	0.83	0.97
<i>degenii</i> 2ab	HOB3, P47, P2139, P2107, P2182, P2183, P3086, P2228	0.43	/	/	/	0.69	0.84
<i>degenii</i> 2a		0.27	0.52	/	/	/	/
<i>degenii</i> 2b	P2228	0.34	NA	0.46	0.31	/	/
<i>tereziana</i>	P0433, P2171, P2172, P2174, P2175, P2021	0.58	0.71	0.44	/	/	0.84
<i>degenii</i> 3a-c		/	0.47	/	/	/	/
<i>degenii</i> 3b	P1267, P2022, P1276	/	/	0.49	0.41	0.79	0.96
<i>degenii</i> 3c	ES3306, P2023	0.33	/	0.49	0.36	0.73	0.98
<i>degenii</i> 3a	P2136, P2137	0.43	/	0.49	0.67	0.77	0.97
<i>membranacea</i> 1	P1005, P2116, P0003, P0086, P2121, P2122, P2191, HOB4, HOB5, HOB6, P2128, P2131	/	/	0.34	/	0.35	0.62
<i>membranacea</i> 2	P2135	0.72	0.35	0.67	/	0.81	0.65
<i>membranacea</i> 1–2		/	/	/	0.51	/	/
Clade 9/ <i>Peltigera</i>	Specimen	ITS	β -tubulin	COR1b	COR3	COR16	bPTP
sp. 18	P2094, P1413	0.72	0.76	0.8	0.61	0.41	0.83
<i>evansiana</i>	P1817, P1818, P2084, P2189	0.48	0.46	0.81	0.63	0.67	0.69
sp. 19	P0078, P2030, P1230	0.47	/	/	0.37	/	0.81
<i>austroamericana</i> 1	P0408, P0027	/	/	/	/	/	0.84
<i>austroamericana</i> 2	P2059, P2138	/	/	/	/	/	0.79
<i>austroamericana</i> 6	P2055	0.31	/	0.46	0.4	0.26	1
sp. 22	P0926, P2077, P2054, P2074	/	/	0.22	0.38	/	0.55
sp. 21	P2218	/	/	/	0.39	0.58	1
<i>canina</i> 1		/	/	0.57	0.28	/	0.34
<i>canina</i> 2		/	/	0.48	/	0.44	0.13
<i>austroamericana</i> 3	P2076, P2197, P2048, P2073	/	/	/	/	0.56	0.59
“ <i>fuscopraetextata</i> ”		0.67	0.42	/	/	0.51	/
sp. 20		0.12	/	/	/	/	0.4
<i>islandica</i>		/	/	/	/	/	0.78
<i>austroamericana</i> 4	P0025, P0038, P0032, P0054	/	/	/	/	/	0.59
<i>praetextata</i>		0.7	/	0.42	/	0.5	/
sp. 21 + sp. 22		0.26	/	/	/	/	/
<i>canina</i> 1 + <i>canina</i> 2		0.24	/	/	/	/	/
<i>austroamericana</i> s.l.		/	0.25	/	/	/	/
<i>islandica</i> + sp. 20		/	/	/	0.36	0.46	/

Table S3. Changes in parameters, likelihood and species support values as a function of the θ prior in bPP analyses. Values in bold (from left to right) represent the θ prior value selected for the final analyses, the lowest differences between Prior and Posterior θ , the best likelihood, and cases where the analyses suggest merging the species, respectively. NA = not applicable.

Clade			Prior θ – Posterior θ	(Prior θ – Posterior θ)/ Posterior θ		<i>ulcerata</i> 1a vs. <i>ulcerata</i> 1b	<i>ulcerata</i> 2a vs. <i>ulcerata</i> 2b	<i>ulcerata</i> 1 vs. <i>ulcerata</i> 2	<i>didactyla</i> 2 vs. <i>sorediifera</i>	<i>extenuata</i> 1 vs. <i>extenuata</i> 2	<i>didactyla</i> 1 vs. <i>didactyla</i> 2- <i>sorediifera</i>
4	Prior θ	Posterior θ	Posterior θ		lnL						
4P	0.010	0.015417333	0.005417333	0.351379386	–9,515	0.91	0.43	0.98	0.99	1.00	1.00
4P	0.015	0.015177333	0.000177333	0.011684069	–9,529	0.63	0.31	0.96	0.89	1.00	1.00
4P	0.020	0.019839294	–0.000160706	–0.008100383	–9,523	0.36	0.22	0.82	0.76	1.00	1.00
4P	0.032	0.031066667	–0.000933333	–0.030042907	–9,515	0.09	0.08	0.42	0.62	0.99	0.98
4P	0.050	NA	NA	NA	–9,509	0.03	0.03	0.21	0.42	0.90	0.87
4P	0.070	NA	NA	NA	–9,507	0.02	0.02	0.22	0.24	0.75	0.54
4P	0.100	NA	NA	NA	–9,504	0.01	0.01	0.14	0.18	0.66	0.47
Clade			Prior θ – Posterior θ	(Prior θ – Posterior θ)/ Posterior θ		<i>ponojensis/monti-</i> <i>cola</i> 1a vs. <i>pono-</i> <i>jensis/monticola</i> 1b	<i>antarctica</i> vs. <i>antarctica</i> 2	<i>ponojensis/monti-</i> <i>cola</i> 4a vs. <i>pono-</i> <i>jensis/monticola</i> 4b	sp. 17a vs. sp. 17b	<i>ponojensis/monti-</i> <i>cola</i> 5a vs. <i>pono-</i> <i>jensis/monticola</i> 5b	<i>ponojensis/monti-</i> <i>cola</i> 10a vs. <i>pono-</i> <i>jensis/monticola</i> 10b
5	Prior θ	Posterior θ	Posterior θ		lnL						
5P	0.0010	0.002127600	0.001127600	0.529986840	–7,954	1.00	0.30	0.25	0.34	0.97	0.99
5P	0.0020	0.002711400	0.000711400	0.262373681	–7,949	1.00	0.34	0.14	0.47	0.93	0.99
5P	0.0032	0.003438000	0.000238000	0.069226294	–7,945	1.00	0.32	0.13	0.48	0.82	0.98
5P	0.0038	0.003818240	1.824E–05	0.004777070	–7,945	1.00	0.31	0.13	0.43	0.76	0.97
5P	0.0050	0.004586960	–0.000413040	–0.090046567	–7,943	1.00	0.29	0.09	0.35	0.61	0.97
5P	0.0080	0.006696458	–0.001303542	–0.194661417	–7,942	0.99	0.20	0.10	0.24	0.35	0.91
5P	0.0120	0.009722958	–0.002277042	–0.234192311	–7,943	0.99	0.14	0.10	0.19	0.22	0.78
5P	0.0180	0.014717833	–0.003282167	–0.223006104	–7,946	0.96	0.11	0.07	0.13	0.17	0.53
5P	0.0250	0.020871696	–0.004128304	–0.197794392	–7,949	0.83	0.10	0.05	0.12	0.17	0.40
5P	0.0320	0.027336565	–0.004663435	–0.170593306	–7,951	0.74	0.11	0.07	0.11	0.15	0.32
Clade			Prior θ – Posterior θ	(Prior θ – Posterior θ)/ Posterior θ		<i>“neorufescens”</i> 1 vs. <i>“neorufescens”</i> 2	<i>“neorufescens”</i> 1–2 vs. <i>“neorufescens”</i> 3	<i>rufescens</i> 1 vs. <i>rufescens</i> 2	<i>papuana</i> vs. <i>granulosa</i>	<i>soredians</i> vs. <i>laciniata</i> 2	
6	Prior θ	Posterior θ	Posterior θ		lnL						
6P	0.0010	0.002013786	0.001013786	0.503422906	–12,512	1.00	1.00	1.00	1.00	1.00	
6P	0.0020	0.002694610	0.000694610	0.257777563	–12,505	1.00	1.00	1.00	1.00	1.00	
6P	0.0032	0.003470750	0.000270750	0.078009076	–12,500	1.00	1.00	1.00	1.00	1.00	
6P	0.004	0.004009000	9E–06	0.002244949	–12,497	1.00	1.00	1.00	0.99	1.00	
6P	0.005	0.004697643	–0.000302357	–0.064363587	–12,495	1.00	1.00	1.00	0.99	1.00	
6P	0.008	0.006923250	–0.001076750	–0.155526667	–12,492	1.00	1.00	1.00	0.94	1.00	
6P	0.012	0.010139679	–0.001860321	–0.183469418	–12,489	0.99	1.00	1.00	0.87	1.00	

Table S3. Continued.

Clade cont.	Prior θ	Posterior θ	Prior θ – Posterior θ	(Prior θ – Posterior θ) / Posterior θ	lnL	“ <i>neorufescens</i> ” 1 vs. “ <i>neorufescens</i> ” 2	“ <i>neorufescens</i> ” 1–2 vs. “ <i>neorufescens</i> ” 3	<i>rufescens</i> 1 vs. <i>rufescens</i> 2	<i>papua</i> vs. <i>granulosa</i>	<i>soredians</i> vs. <i>laciniata</i> 2
6P	0.018	0.015329357	–0.002670643	–0.174217538	–12,488	0.94	1.00	1.00	0.77	1.00
6P	0.025	0.021705643	–0.003294357	–0.151774226	–12,486	0.79	0.99	0.98	0.71	0.98
6P	0.032	0.028303357	–0.003696643	–0.130607935	–12,485	0.61	0.91	0.94	0.66	0.96
6P	0.050	NA	NA	NA	–12,483	0.35	0.73	0.77	0.62	0.80
6P	0.070	NA	NA	NA	–12,481	0.17	0.44	0.65	0.60	0.76
6P	0.100	NA	NA	NA	–12,480	0.12	0.3	0.53	0.58	0.52
Clade 7	Prior θ	Posterior θ	Prior θ – Posterior θ	(Prior θ – Posterior θ) / Posterior θ	lnL	<i>montis-wilhelmii</i> 1 vs. <i>montis-wilhelmii</i> 2	<i>erioderma</i> 1 vs. <i>erioderma</i> 2	<i>neocanina</i> 1a vs. <i>neocanina</i> 1b	<i>neocanina</i> 1 vs. <i>neocanina</i> 2	
7P	0.001	0.001941714	0.000941714	0.484991171	–7,892	0.97	1.00	0.73	1.00	
7P	0.0020	0.002527000	0.000527000	0.208547685	–7,889	0.90	1.00	0.64	1.00	
7P	0.0032	0.003283080	8.308E–05	0.025305506	–7,886	0.82	1.00	0.47	1.00	
7P	0.0050	0.004385077	–0.000614923	–0.140230833	–7,886	0.70	1.00	0.29	1.00	
7P	0.0120	0.009614692	–0.002385308	–0.248089862	–7,890	0.45	0.97	0.11	1.00	
7P	0.0180	0.014464500	–0.003535500	–0.244426009	–7,892	0.37	0.9	0.07	0.99	
7P	0.0250	0.021123846	–0.003876154	–0.183496595	–7,894	0.34	0.81	0.06	0.88	
7P	0.0320	0.027759538	–0.004240462	–0.152756937	–7,895	0.33	0.74	0.05	0.67	
Clade 8	Prior θ	Posterior θ	Prior θ – Posterior θ	(Prior θ – Posterior θ) / Posterior θ	lnL	<i>membranacea</i> 1 vs. <i>membranacea</i> 2	<i>degenii</i> 3b vs. <i>degenii</i> 3c	<i>degenii</i> 3a vs. <i>degenii</i> 3b–3c	<i>degenii</i> 2a vs. <i>degenii</i> 2b	
8P	0.001	0.001615000	0.000615000	0.380804954	–8,956	1.00	1.00	1.00	1.00	
8P	0.002	0.002164330	0.000164330	0.075926499	–8,954	1.00	1.00	1.00	1.00	
8P	0.0025	0.002428467	–7.15333E–05	–0.029456173	–8,954	1.00	1.00	1.00	1.00	
8P	0.0032	0.002816270	–0.000383730	–0.136254691	–8,954	1.00	1.00	1.00	1.00	
8P	0.005	0.003830730	–0.001169270	–0.305234250	–8,954	1.00	1.00	1.00	1.00	
8P	0.008	0.005600000	–0.002400000	–0.428571429	–8,957	1.00	1.00	1.00	0.99	
8P	0.012	0.008423267	–0.003576733	–0.424625442	–8,961	1.00	1.00	1.00	0.96	
8P	0.018	0.012934733	–0.005065267	–0.391601940	–8,967	1.00	0.97	1.00	0.65	
8P	0.025	0.018435385	–0.006564615	–0.356087791	–8,973	1.00	0.88	0.99	0.23	
8P	0.032	0.024410786	–0.007589214	–0.310895929	–8,978	0.94	0.74	0.97	0.13	

Table S3. Continued.

Clade			Prior θ	(Prior θ – Posterior θ)/		<i>islandica</i>	<i>austroamericana</i> 1	<i>austroamericana</i> 3
9	Prior θ	Posterior θ	Posterior θ	Posterior θ	lnL	vs. sp. 20	vs. <i>austroamericana</i> 2	vs. <i>austroamericana</i> 4
9P	0.0010	0.002395677	0.001395677	0.582581458	–10,571	1.00	1.00	1.00
9P	0.0020	0.002922161	0.000922161	0.315575015	–10,563	1.00	1.00	1.00
9P	0.0032	0.003594581	0.000394581	0.109771069	–10,556	1.00	1.00	1.00
9P	0.0044	0.004295097	–0.000104903	–0.024423895	–10,550	1.00	1.00	1.00
9P	0.0050	0.004655419	–0.000344581	–0.074017183	–10,549	1.00	0.99	1.00
9P	0.0080	0.006599613	–0.001400387	–0.212192291	–10,543	1.00	0.97	1.00
9P	0.0120	0.009470935	–0.002529065	–0.267034353	–10,542	0.93	0.90	0.98
9P	0.0180	0.014211613	–0.003788387	–0.266569812	–10,545	0.58	0.82	0.63
9P	0.0250	0.018687000	–0.006313000	–0.337828437	–10,546	0.26	0.79	0.32
9P	0.0320	0.024148034	–0.007851966	–0.325159638	–10,552	0.17	0.74	0.24

Table S4. Identical *rbcLX* sequences collapsed prior to the RAxML analysis (Fig. 3). Names in square brackets might be misidentifications.

Sequence no.	No. of seq.	<i>Peltigera</i> species/other genera	Locality	DNA/G.B. no.
Seq1	6	<i>malacea</i>	Canada: BC	KC437690, KC437691, KC437902, KC437903, KC437904, KC437906
Seq2	8	<i>“fuscopraetextata”</i>	Argentina	P2012, P2016, P2018
		<i>“fuscopraetextata”</i>	Chile	P2014, P2017
		<i>frigida</i>	Chile	P2041
		<i>ulcerata</i> 1	Costa Rica	P0077
		sp. 22	Colombia	P0926
Seq3	5	<i>rufescens</i>	Germany	DQ185275
		<i>leucophlebia</i>	Canada: BC	KC437826
		<i>neopolydactyla</i> s.l.	Canada: BC	KC437876
		<i>leucophlebia</i> , <i>venosa</i> , <i>britannica</i>	Canada: BC	KC437676
		<i>canina</i> , <i>aphthosa</i> , <i>ponojensis</i> , <i>kristinssonii</i> , <i>“fuscopraetextata”</i> , <i>praetextata</i> , sp.	Canada: BC	KC437789
Seq4	5	<i>degenii</i> 3a	Russia	P2136
		<i>degenii</i> 1	Ukraine	P2170
		<i>membranacea</i>	Finland	EF102334
		<i>membranacea</i>	Canada: BC	KC437874
		[<i>neopolydactyla</i> s.l.] <i>degenii</i> ?	Finland	EF102337
Seq5	5	<i>scabrosa</i> 1	Canada: QC	KX922997, KX922999, KX923000
		<i>scabrosa</i> 4	Norway	KX923020
		<i>occidentalis</i>	Norway	KX922969
Seq6	8	<i>neopolydactyla</i> s.l.	Canada: BC	KC437910
		<i>neopolydactyla</i> 1	Canada: QC	KX922922
		<i>scabrosa</i> 4	Canada: QC	KX923018
		<i>scabrosa</i> 4	Norway	KX923019
		<i>scabrosa</i> 1	Canada: AB	KX922995
		<i>scabrosa</i> 1	Canada: QC	KX922998
		<i>occidentalis</i>	U.S.A.: AK	KX922970
		<i>occidentalis</i>	Canada: QC	KX922966
Seq7	8	<i>membranacea</i>	U.S.A.: AK	DQ185284
		<i>aphthosa</i>	Switzerland	DQ185311
		<i>leucophlebia</i>	Finland	EF102327, EF102328
		<i>praetextata</i>	Finland	EF102331, EF102331
		<i>canina</i> 1	Canada: BC	HOB12
		<i>Nostoc</i> sp.	unknown	AB075918
Seq8	5	<i>praetextata</i>	Finland	EF102345
		<i>polydactylon</i>	Norway	KX922977
		<i>polydactylon</i>	U.S.A.: AK	KX922978
		<i>polydactylon</i>	Norway	KX922983, KX922984
Seq9	6	<i>praetextata</i>	Norway	P0570, P0842
		<i>ponojensis/monticola</i> 7	Norway	P0075
		<i>“neocanina”</i> 4	Iceland	P0006
		<i>cinnanomea</i>	Canada: BC	P1808, KC437699

Table S4. Continued.

Sequence no.	No. of seq.	<i>Peltigera</i> species/other genera	Locality	DNA/G.B. no.
Seq10	6	<i>canina</i> , <i>leucophlebia</i> , “ <i>fuscopraetextata</i> ”, <i>polydactylon</i> , spp.	Canada: BC	KC437699
		<i>neopolydactyla</i> 2	Norway	KX922940, KX922938, KX922942, KX922941
		<i>degenii</i> 1	Norway	P0586
Seq11	10	<i>membranacea</i> 1	Norway	P1005
		“ <i>neocanina</i> ” 1	U.S.A.: CO	P2089
		<i>ponojensis/monticola</i> 10b	U.S.A.: UT	P2114
		<i>lepidophora</i> 1	Iceland	P2124
		<i>ponojensis/monticola</i> 8	U.S.A.: UT	P2210, P2207
		<i>didactyla</i> 3	Canada: BC	P2110
		“ <i>neocanina</i> ” 1	Canada: BC	HOB27
		<i>lepidophora</i> 1	unknown	P1844
		“ <i>fuscopraetextata</i> ”	U.S.A.: UT	P2223
Seq12	9	<i>leucophlebia</i> , “ <i>neocanina</i> ”, <i>neckeri</i> , <i>britannica</i> , spp.	Canada: BC	KC437817
		<i>austroamericana</i> 4	Costa Rica	P0032
		<i>soredians</i>	Costa Rica	P2068
		<i>soredians</i>	Ecuador	P2151
		<i>laciniata</i> 2	Bolivia	P2051
		<i>laciniata</i> 1	Ecuador	P2198, P2058
		<i>laciniata</i> 1	Colombia	P2075
		<i>laciniata</i> 1	Bolivia	P2050
		sp. 15	Colombia	P2153
Seq13	6	<i>membranacea</i> 1	Corsica	P2122
		<i>membranacea</i> 1	Portugal	P2121
		<i>melanorrhiza</i>	Azores	KX922914
		<i>hymenina</i>	Azores	KX922902, KX922903, KX922910
Seq 14	11	<i>neopolydactyla</i> 2b	China	KX922931, KX922933, KX922935, KX922936, KX922932, KX922934, KX922944
		<i>neopolydactyla</i> s.l	unknown	KC437914
		<i>scabrosa</i> 3	Russia	KX923014, KX923015
		sp. 5	PNG	KX923045
Seq15	18	<i>austroamericana</i>	Peru	P1474
		<i>austroamericana</i> 1	Costa Rica	P0027
		<i>austroamericana</i> 3	Peru	P2048
		<i>austroamericana</i> 3	Ecuador	P2197
		<i>austroamericana</i> 4	Mexico	P2060
		<i>austroamericana</i> 4	Costa Rica	P0038
		<i>austroamericana</i> 5	Ecuador	P2019
		<i>austroamericana</i> 5	Bolivia	P2052
		<i>frigida</i>	Chile	P0082
		sp. 17	Ecuador	P2195
		<i>ulcerata</i> 1	Costa Rica	P0033, P0041
		<i>continentalis</i>	Russia	P1810, P2099

Table S4. Continued.

Sequence no.	No. of seq.	<i>Peltigera</i> species/other genera	Locality	DNA/G.B. no.
Seq 16	20	sp. 22	Colombia	P1841, P2077
		sp. 22	Peru	P2074
		“ <i>neocanina</i> ” 1	U.S.A.: AK	P2098
		<i>scabrosa</i> 2	Norway	KX923011
		<i>neopolydactyla</i> 4	Norway	KX922954
		<i>scabrosella</i>	Greenland	KX923024
		<i>scabrosella</i>	Norway	KX923023
		<i>scabrosa</i> 2	Norway	KX923010
		<i>scabrosa</i> 2	Norway	KX923009
		<i>scabrosella</i>	Norway	KX923022
		<i>neopolydactyla</i> 4	Norway	KX922953
		<i>scabrosa</i> 2	Canada:QC	KX923003
		<i>scabrosa</i> 2	Norway	KX923005
		<i>neopolydactyla</i> 4	Norway	KX922952
		<i>scabrosa</i> 2	Canada:BC	KX923006
		<i>scabrosella</i>	Norway	KX923021
		<i>scabrosa</i> 2	Canada:QC	KX923008
		<i>scabrosa</i> 2	Russia	KX923007
		sp. 7b	Japan	KX923054
		sp. 7b	Japan	KX923055
Seq17	11	sp. 7b	Japan	KX923056
		<i>Nephroma arcticum</i>	Canada:BC	KC437907
		<i>neopolydactyla</i>	Canada:BC	KC437908
		<i>N. bellum</i>	Austria	DQ185293
		<i>N. bellum</i>	unknown	KC437843, EF102308, EF102309, EF102310
		<i>N. bellum</i>	Finland	EF102306
		<i>N. resupinatum</i>	unknown	EF102318, EF102319
		<i>Lobaria pulmonaria</i>	unknown	EF102297
		<i>Parmeliella triptophylla</i>	unknown	EF102324, EF102325
Seq18	6	<i>N. parile</i>	Finland	EF102314, EF102316, EF102317
		<i>N. parile</i>	Canada: BC	KC437844
		<i>L. pulmonaria</i>	Finland	EF102302, EF102298

Table S5. Specificity index for *Peltigera* species with at least three *rbcLX* sequences for their *Nostoc* cyanobionts in our dataset. The raw score calculation is based on all sequences available. The corrected score 1 (correction for the non-supported phylogroups) is based on the assumption that sequences from phylogroups XXX and XXXIX (Fig. 3) represent different groups unless the sequences are identical or form a highly-supported subclade within these phylogroups. The corrected score 2 (correction for the sample/locality) is based on a single sequence per phylogroup for each locality.

<i>Peltigera</i> species	Clade (Fig. 1)	No. of seq.	Raw score	Corrected score 1	Corrected score 2
<i>retifoveata</i>	1	4	1.00	1.00	1.00
<i>aubertii</i>	2	5	0.44	0.44	0.44
<i>frigida</i>	2	5	0.44	0.44	0.44
sp. 14	2	3	1.00	1.00	1.00
<i>patagonica</i>	2	4	1.00	1.00	1.00
<i>continentalis</i>	3	3	0.54	0.33	0.50
<i>ulcerata</i> 1	4	7	0.55	0.21	0.38
<i>extenuata</i> 1	4	6	0.72	0.72	0.72
<i>vainioi</i>	4	3	1.00	1.00	1.00
<i>ponojensis/monticola</i> 1a	5	7	0.23	0.18	0.23
<i>antarctica</i>	5	5	0.28	0.20	0.28
<i>ponojensis/monticola</i> 10a	5	3	0.33	0.50	0.33
<i>ponojensis/monticola</i> 9	5	5	0.44	0.44	0.44
sp. 17	5	9	0.49	0.49	0.25
<i>ponojensis/monticola</i> 6	5	3	0.54	0.54	0.50
<i>ponojensis/monticola</i> 8	5	8	0.59	0.25	0.44
<i>ponojensis/monticola</i> 4	5	4	0.63	0.63	0.63
<i>rufescens</i> 1	6	5	0.28	0.28	0.28
<i>friesiorum</i>	6	16	0.36	0.29	0.22
<i>soredians</i>	6	4	0.50	0.50	0.54
<i>wulingensis</i>	6	3	0.54	0.54	0.54
<i>lepidophora</i> 1	6	3	0.54	0.54	0.54
<i>laciniata</i> 1	6	8	0.78	0.78	0.72
“neocanina” 1	7	8	0.31	0.22	0.31
“neocanina” 2	7	3	0.54	0.33	0.54
“neocanina” 3	7	5	0.68	0.68	0.50
<i>degenii</i> 1	8	6	0.21	0.21	0.21
<i>degenii</i> 2a	8	6	0.46	0.46	0.46
<i>membranacea</i> 1	8	7	0.59	0.59	0.59
<i>degenii</i> 3b	8	3	1.00	1.00	1.00
<i>tereziana</i>	8	5	1.00	1.00	1.00
<i>canina</i> 2	9	15	0.24	0.15	0.14
<i>canina</i> 1	9	14	0.25	0.25	0.22
<i>praetextata</i>	9	13	0.37	0.37	0.35
<i>austroamericana</i> 3	9	4	0.50	0.50	0.50
<i>austroamericana</i> 5	9	7	0.51	0.43	0.51
<i>austroamericana</i> 4	9	5	0.52	0.36	0.63
<i>evansiana</i>	9	4	0.63	0.63	0.56
sp. 22	9	5	0.68	0.44	0.68
“fuscopraetextata”	9	10	0.82	0.82	0.82
sp. 19	9	3	1.00	1.00	1.00

Table S6. Species, geographic origin, reference paper and ITS GenBank accession number of specimens that were only used to assess the variation of the ITS1-HR region.

Species	Geographic origin and reference	ITS GenBank No.
<i>P. retifoveata</i>	Canada, Miadlikowska & al., 2003	AY257888
<i>P. retifoveata</i>	Canada, Miadlikowska & al., 2003	AY257889
<i>P. sp. 14</i>	Schmull & al., 2011	HQ650648
<i>P. frigida</i>	Miadlikowska & al., 2003	AY257894
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708935
<i>P. krisinssonii</i>	Canada, Miadlikowska & al., 2003	AY257891
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708936
<i>P. krisinssonii</i>	Canada, Miadlikowska & al., 2003	AY257892
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708938
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708953
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708939
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708940
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708941
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	KC437637
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708942
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708943
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708945
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708946
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708947
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708948
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708949
<i>P. krisinssonii</i>	Canada, BC, O'Brien & al., 2013	FJ708950
<i>P. continentalis</i>	Mongolia, Miadlikowska & al., 2003	AY257890
<i>P. castanea</i>	Canada, Goffinet & al., 2003	AY266019
<i>P. castanea</i>	Canada, Goffinet & al., 2003	AY266021
<i>P. castanea</i>	Canada, Goffinet & al., 2003	AY266023
<i>P. castanea</i>	Canada, Goffinet & al., 2003	AY266025
<i>P. didactyla</i> 1	Canada, Goffinet & al., 2003	AY266044
<i>P. didactyla</i> 2	New Zealand, Thomas & al., 2002	AF350295
<i>P. didactyla</i> 2	Poland, Miadlikowska & al., 2003	AY257930
<i>P. didactyla</i> 3	Brazil, Miadlikowska & al., 2003	AY257931
<i>P. didactyla</i> 3	Canada, BC, Goffinet & al., 2003	AY266027
<i>P. didactyla</i> 3	Canada, BC, Goffinet & al., 2003	AY266029
<i>P. didactyla</i> 3	Papua New Guinea, Sérusiaux & al., 2009	FJ527258
<i>P. didactyla</i> 3	Poland, Miadlikowska & al., 2003	AY257929
<i>P. extenuata</i> 1	Canada, Miadlikowska & al., 2003	AY257940
<i>P. extenuata</i> 1	Canada, Miadlikowska & al., 2003	AY257942
<i>P. extenuata</i> 1	Canada, Goffinet & al., 2003	AY266031
<i>P. extenuata</i> 1	Canada, Goffinet & al., 2003	AY266033
<i>P. extenuata</i> 1	Canada, Goffinet & al., 2003	AY266035
<i>P. extenuata</i> 1	Poland, Miadlikowska & al., 2003	AY257937
<i>P. extenuata</i> 1	Poland, Miadlikowska & al., 2003	AY257938
<i>P. extenuata</i> 1	Poland, Miadlikowska & al., 2003	AY257939

Table S6. Continued.

Species	Geographic origin and reference	ITS GenBank No.
<i>P. extenuata</i> 2	Mexico, Goffinet & al., 2003	AY266042
<i>P. sorediifera</i>	Australia, Miadlikowska & al., 2003	AY257933
<i>P. sorediifera</i>	Rwanda, Miadlikowska & al., 2003	AY257935
<i>P. sorediifera</i>	Rwanda, Goffinet & al., 2003	AY266037
<i>P. sorediifera</i>	Democratic Republic of Congo, Miadlikowska & al., 2003	AY257934
<i>P. sorediifera</i>	Democratic Republic of Congo, Miadlikowska & al., 2003	AY257935
<i>P. ulcerata</i> 1	Rwanda, Goffinet & al., 2003	AY266040
<i>P. ulcerata</i> 2	Brazil, Miadlikowska & al., 2003	AY257957
<i>P. ulcerata</i> 2	Papua New Guinea, Sérusiaux & al., 2009	FJ527259
<i>P. ponojensis/monticola</i> 6	Poland, Miadlikowska & al., 2003	AY257872
<i>P. ponojensis/monticola</i> 6	Poland, Miadlikowska & al., 2003	AY257874
<i>P. ponojensis/monticola</i> 9	Switzerland, Miadlikowska & al., 2003	AY257877
<i>P. ponojensis/monticola</i> 9	Switzerland, Miadlikowska & al., 2003	AY257881
<i>P. granulosa</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527254
<i>P. granulosa</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527256
<i>P. granulosa</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527245
<i>P. granulosa</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527247
<i>P. granulosa</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527248
<i>P. granulosa</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527249
<i>P. granulosa</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527250
<i>P. granulosa</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527251
<i>P. laciniata</i> 1	Ecuador, Miadlikowska & al., 2003	AY257922
<i>P. laciniata</i> 1	Ecuador, Miadlikowska & al., 2003	AY257923
<i>P. lepidophora</i> 1	Canada, Miadlikowska & al., 2003	AY257920
<i>P. lepidophora</i> 1	Canada, Miadlikowska & al., 2003	AY257921
<i>P. "neorufescens"</i> 5	Canada, Miadlikowska & al., 2003	AY257916
<i>P. rufescens</i> 1	Canada, Miadlikowska & al., 2003	AY257917
<i>P. rufescens</i> 1	Canada, Miadlikowska & al., 2003	AY257918
<i>P. rufescens</i> 1	Canada, Miadlikowska & al., 2003	AY257925
<i>P. rufescens</i> 1	Canada, Miadlikowska & al., 2003	AY257927
<i>P. wulingensis</i>	China, Han & al., 2013	JX094144
<i>P. wulingensis</i>	China, Han & al., 2013	JX094145
<i>P. wulingensis</i>	China, Han & al., 2013	JX094146
<i>P. wulingensis</i>	China, Han & al., 2013	JX094147
<i>P. wulingensis</i>	China, Han & al., 2013	JX094148
<i>P. wulingensis</i>	China, Han & al., 2013	JX094149
<i>P. wulingensis</i>	China, Han & al., 2013	JX094150
<i>P. cinnamomea</i>	Canada, BC, O'Brien & al., 2013	FJ708914
<i>P. cinnamomea</i>	Canada, BC, O'Brien & al., 2013	FJ708915
<i>P. cinnamomea</i>	Canada, Miadlikowska & al., 2003	AY257898
<i>P. cinnamomea</i>	Canada, Miadlikowska & al., 2003	AY257898
<i>P. cinnamomea</i>	Canada, Miadlikowska & al., 2003	AY257913
<i>P. erioderma</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527264
<i>P. montis-wilhelmii</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527261

Table S6. Continued.

Species	Geographic origin and reference	ITS GenBank No.
<i>P. "neocanina"</i> 1	Canada, Miadlikowska & al., 2003	AY257897
<i>P. "neocanina"</i> 1	Canada, BC, O'Brien & al., 2013	KC437636
<i>P. "neocanina"</i> 1	Canada, BC, O'Brien & al., 2013	FJ708918
<i>P. "neocanina"</i> 1	Canada, BC, O'Brien & al., 2013	FJ708919
<i>P. "neocanina"</i> 1	Canada, BC, O'Brien & al., 2013	FJ708920
<i>P. "neocanina"</i> 1	Canada, BC, O'Brien & al., 2013	FJ708921
<i>P. "neocanina"</i> 2	Canada, Miadlikowska & al., 2003	AY257955
<i>P. degenii</i> 1	Finland, Miadlikowska & al., 2003	AY257903
<i>P. degenii</i> 1	Finland, Fedrowitz & al., 2011	HM448800
<i>P. degenii</i> 1	Finland, Fedrowitz & al., 2011	HM448801
<i>P. degenii</i> 1	Poland, Miadlikowska & al., 2003	AY257901
<i>P. degenii</i> 2a	Canada, Miadlikowska & al., 2003	AY257887
<i>P. degenii</i> 2a	Canada, Miadlikowska & al., 2003	AY257902
<i>P. degenii</i> 2a	Canada, Miadlikowska & al., 2003	AY257904
<i>P. degenii</i> 3a	James & al., 2006	DQ782841
<i>P. degenii</i> 3c	South Korea, Wei & al., 2009	GQ292456
<i>P. degenii</i> 3c	South Korea, Wei & al., 2009	GQ292458
<i>P. membranacea</i> 1	Canada, BC, O'Brien & al., 2013	FJ709032
<i>P. membranacea</i> 1	Canada, BC, O'Brien & al., 2013	FJ709033
<i>P. membranacea</i> 1	Canada, Miadlikowska & al., 2003	AY257906
<i>P. membranacea</i> 1	Xavier & al., 2012	JX181776
<i>P. membranacea</i> 1	Poland, Miadlikowska & al., 2003	AY257907
<i>P. membranacea</i> 1	Canada, BC, O'Brien & al., 2013	KC437646
<i>P. membranacea</i> 2	Russia, Miadlikowska & al., 2003	AY257908
<i>P. tereziana</i>	Australia, Sérusiaux & al., 2009	FJ527266
<i>P. tereziana</i>	Australia, Sérusiaux & al., 2009	FJ527267
<i>P. koponenii</i> (canina 1)	Papua New Guinea, Sérusiaux & al., 2009	FJ527269
<i>P. koponenii</i> (canina 1)	Papua New Guinea, Sérusiaux & al., 2009	FJ527271
<i>P. canina</i> 1	Finland, Fedrowitz & al., 2011	HM448788
<i>P. canina</i> 1	Finland, Fedrowitz & al., 2011	HM448789
<i>P. canina</i> 1	Finland, Fedrowitz & al., 2011	HM448790
<i>P. canina</i> 1	Finland, Fedrowitz & al., 2011	HM448791
<i>P. canina</i> 1	Finland, Fedrowitz & al., 2011	HM448792
<i>P. canina</i> 1	Finland, Fedrowitz & al., 2011	HM448793
<i>P. canina</i> 1	Finland, Fedrowitz & al., 2011	HM448794
<i>P. canina</i> 1	Finland, Fedrowitz & al., 2011	HM448795
<i>P. canina</i> 1	Finland, Fedrowitz & al., 2011	HM448796
<i>P. canina</i> 1	Poland, Miadlikowska & al., 2003	AY257953
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708877
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708878
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708879
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708880
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708891
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708882

Table S6. Continued.

Species	Geographic origin and reference	ITS GenBank No.
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708883
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708884
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708885
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708886
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708887
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708888
<i>P. canina</i> 1	Canada, BC, O'Brien & al., 2013	FJ708889
<i>P. canina</i> 2	Canada, Miadlikowska & al., 2003	AY257896
<i>P. canina</i> 2	Canada, Miadlikowska & al., 2003	AY257952
<i>P. canina</i> 2	Canada, BC, O'Brien & al., 2013	FJ708873
<i>P. evansiana</i>	Canada, Miadlikowska & al., 2003	AY257950
<i>P. evansiana</i>	Canada, Miadlikowska & al., 2003	AY257951
<i>P. "fuscopraetextata"</i>	Canada, BC, O'Brien & al., 2013	FJ708894
<i>P. "fuscopraetextata"</i>	Canada, BC, O'Brien & al., 2013	FJ708895
<i>P. "fuscopraetextata"</i>	Canada, BC, O'Brien & al., 2013	FJ708896
<i>P. "fuscopraetextata"</i>	Canada, BC, O'Brien & al., 2013	FJ708897
<i>P. "fuscopraetextata"</i>	Canada, BC, O'Brien & al., 2013	FJ708898
<i>P. "fuscopraetextata"</i>	Canada, BC, O'Brien & al., 2013	FJ708899
<i>P. "fuscopraetextata"</i>	Canada, BC, O'Brien & al., 2013	FJ708900
<i>P. "fuscopraetextata"</i>	Canada, BC, O'Brien & al., 2013	FJ708902
<i>P. "fuscopraetextata"</i>	Canada, BC, O'Brien & al., 2013	FJ708901
<i>P. "fuscopraetextata"</i>	Canada, BC, O'Brien & al., 2013	KC437607
<i>P. "fuscopraetextata"</i>	Canada, BC, O'Brien & al., 2013	FJ708903
<i>P. "fuscopraetextata"</i>	Canada, Miadlikowska & al., 2003	AY257948
<i>P. "fuscopraetextata"</i>	Canada, Miadlikowska & al., 2003	AY257949
<i>P. "fuscopraetextata"</i>	Canada, Miadlikowska & al., 2003	AY257911
<i>P. "fuscopraetextata"</i>	USA, Miadlikowska & al., 2003	AY257912
<i>P. praetextata</i>	Canada, BC, O'Brien & al., 2013	KC437648
<i>P. praetextata</i>	Canada, BC, O'Brien & al., 2013	KC437650
<i>P. praetextata</i>	Canada, Miadlikowska & al., 2003	AY257900
<i>P. praetextata</i>	Canada, Miadlikowska & al., 2003	AY257914
<i>P. praetextata</i>	Canada, Miadlikowska & al., 2003	AY257947
<i>P. praetextata</i>	Finland, Fedrowitz & al., 2011	HM448797
<i>P. praetextata</i>	France, Miadlikowska & al., 2003	AY257945
<i>P. praetextata</i>	South Korea, Wei & al., 2009	GQ292454
<i>P. praetextata</i>	South Korea, Wei & al., 2009	GQ292463
<i>P. praetextata</i>	Poland, Miadlikowska & al., 2003	AY257943
<i>P. praetextata</i>	Poland, Miadlikowska & al., 2003	AY257944
<i>P. papuana</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527245
<i>P. papuana</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527247
<i>P. papuana</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527248
<i>P. papuana</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527249
<i>P. papuana</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527250
<i>P. papuana</i>	Papua New Guinea, Sérusiaux & al., 2009	FJ527251

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Fig. S1. Best ML trees resulting from single-locus RaxML analyses on **A**, ITS, **B**, β -tubulin, **C**, COR1b, **D**, COR3 and **E**, COR16. Thick branches received a bootstrap support $\geq 70\%$.

B) β -tubulin



[illegible]



Clade 1 (*P. retifoveata* clade) **Section *Retifoveatae***

<i>P. retifoveata</i>	(5)	[54]	GGGCTGGTTTATGGGAAAGAGATATTTTTTGGTAAATATTTGCGC
<i>P. sp. 13</i>	(1)	[57]	GGGCTGTGAGTATAAAAAAATTGTTTGTGAATTTTTTTTTATATTCTTGGCC

Clade 2a (*P. sp.* clade) **Section *Peltigera***

<i>P. sp. 14</i>	(2)	[52]	GGGCTGAGTTATTGGGCTAAAAAAAATTTTTTT::GGGCTTAATACTTTGCC
<i>P. sp. 14</i>	(1)	[52]	GGGCTGAGTTATTGGGCTAAAAAAAATTTTTTT::GGGCTTAATACTTTGCC
<i>P. sp. 14</i>	(1)	[51]	GGGCTGAGTTATTGGGCTAAAAAAAATTTTTTT::GGGCTTAATACTTTGCC
<i>P. aubertii</i>	(2)	[51]	GGGCTGAGTTATTGGGCTAAAAA::TTTITTTTTTGGGCTTAATACTTTGCC
<i>P. aubertii</i>	(4)	[50]	GGGCTGAGTTATTGGGCTAAAAA::TTTTTTTTTGGGCTTAATACTTTGCC

Clade 2b (*frigida* clade)

<i>P. sp. 16</i>	(1)	[78]	GGGCGGGTTCTTTGGCCTTAAACAAAAAATATATATATATATATTTTTTTTTGTTGTTGGTCCCTTGCTCTTGCCG
<i>P. frigida</i>	(2)	[81]	GGGCGGGTTCTTTGGCTTTAAAAAATAAAAAATAAATTTTTTTTT:GTTTTTTTTTTGTTGGGGTTTAGGCTTTGCCG
<i>P. frigida</i>	(2)	[79]	GGGCGGGTTCTTTGGCTTTAAAAAATAAAAAATAA:TTTTTTTTTGTTTTTTTT::GTGGGGTTTAGGCTTTGCCG
<i>P. frigida</i>	(2)	[79]	GGGCGGGTTCTTTGGCTTTAAAAAATAAAAAATAAATTTTTTTTT:GTTTTTTTT::GTGGGGTTTAGGCTTTGCCG
<i>P. patagonica</i>	(1)	[76]	GGGCGGGTTCTTTGGCTTT:AAAAAAAAAAAAAAAAAATTTTTTTTTTTTTTTTTGGGCTTAGGCTTTGCCG
<i>P. patagonica</i>	(1)	[71]	GG::GGTTCTTTGGCTTT:AAAAAAAAAAAAAAAAA:TTTTTTTTTTTTTTTTTTGGGCTTAGGCTTTGCCG
<i>P. patagonica</i>	(1)	[69]	GGGCGGGTTCTTTGGCTTT:AAAAAAAAAAAAAAAAA:TTTTTTTTTTTTTT:::GGGCTTAGGCTTTGCCG
<i>P. patagonica</i>	(1)	[68]	GGGCGGGCTCTTTGGCTTT:AAAAAAAAAAAAAAAAA:TTTTTTTTTTTT:::GGGCTTAGGCTTTGCCG

Clade 2c (*P. kristinssonii* clade)

<i>P. kristinssonii</i>	(21)	[80]	GGGCGGAGTTCTCTGACTTT:ATTAAATAACTAAAGAATAATTTTTTTTTTATTTATTTTTTTTGGTCTAATGATTGCC
<i>P. kristinssonii</i>	(1)	[80]	GGGCGGAGTTCTCTGACTTTTATTAA:TAAGTAAAGAATAAATTTTTTTTTTATTTATTTTTTTTGGTCTAATGATTGCC
<i>P. kristinssonii</i>	(1)	[79]	GGGCGGAGTTCTCTGACTTT:ATTAA:TAAGTAAAGAATAAATTTTTTTTTTATTTATTTTTTTTGGTCTAATGATTGCC
<i>P. kristinssonii</i>	(1)	[79]	GGGCGGAGTTCTCTGACTTT:ATTAA:TAAGTAAAGAATAAATTTTTTTTTTATTTATTTTTTTTGGTCTAATGATTGCC

Clade 3 (*P. continentalis* clade)

<i>P. isidiophora</i>	(1)	[86]	TTTCTTTAAAAAAAAGGGGGGGGGGGTTGAGAAAAAAGGGGCTTTATGATGGTGCC
<i>P. isidiophora</i>	(1)	[86]	CTTTTTTTAAAAAAAAGGGGGGGGGGGGGGGGGAAGAAAAAAGGGGCTTTATGATGGTGCC
<i>P. isidiophora</i>	(1)	[86]	CTTTTTTTTAAAAAAAAGGGGGGGGGGGGGGGGAAAAAAGGGGCTTTATGATGGTGCC
<i>P. continentalis</i>	(1)	[89]	GGGTGGGGTTTGGCTTACTCTTTTTTTTTTTTTTTTTATTTATTTAAAAAAGGTGGGTCCTTATGATGTGCC
<i>P. continentalis</i>	(1)	[84]	GGGTGGGGTTTGGCTTACTCTTTTTTTTTTTTTTTTT::TTATT:AAAAAAGGTGGGTCCTTATGATGTGCC
<i>P. continentalis</i>	(1)	[81]	GGGTGGGGTTTGGCTTACTCTTTTTTTTTTTTTTTTTA::ATT:AAAAAAGGTGGGTCCTTATGATGTGCC
<i>P. continentalis</i>	(1)	[NA]	?????????GGCTTACTCTTTTTTTTTTTTTTTTT::ATT:AAAAAAGGTGGGTCCTTATGATGTGCC

Clade 4 (*P. didactyla* clade)

<i>P. extenuata</i> 1	(15)	[66]	GGGCCC GGTAATGGCTTTCCCACTCTATTTTCTATTA::GAAAGCTAAGAAAGTTTCTGATGTCGCT
<i>P. extenuata</i> 2	(3)	[68]	GGGCCC GGTAATGCTCTTTCTGATTATTTTCCATTAAAGGAAAAAGGAAAGTCTTCTGATGTCGCT
<i>P. vainioi</i>	(1)	[56]	GGGCCC GGTAATGACTTTTCTAATTTTTTTTTTTTTTT::AAGCTTGTGATGTCGCT
<i>P. vainioi</i>	(1)	[54]	GGGCCC GGTAATGACTTTTCTAATTTTTTTTTTTTTTT::AAGCTTGTGATGTCGCT
<i>P. vainioi</i>	(1)	[58]	GGGCCC GGTAATGACTTTTCTAATTTTTTTTTTTTTTTTTAAGTCTTGTGATGTCGCT
<i>P. ulcerata</i> 1	(4)	[53]	GGGCCC GGTAAT: TGGCTTTTCTACTTTTCAAAAAA:::GTCTTGTGATGTCGCT
<i>P. ulcerata</i> 1	(2)	[50]	GGGCCC GGTAAT: TGGCTTTTCTACTTTTCAAAAAA:::GTCTTGTGATGTCGCT
<i>P. ulcerata</i> 1	(1)	[56]	GGGCCC GGTAAT: TGGCTTTTCTACTTTTCAAAAAAGAAA::GTCTTGTGATGTCGCT
<i>P. ulcerata</i> 1	(1)	[53]	GGGCCC GGTAATGCTTTTCTACTTTTCAAAAAA:::GTCTTGTGATGTCGCT
<i>P. ulcerata</i> 1	(1)	[56]	GGGCCC GGTAAT: TGGCTTTTCTACTTTTCAAAAAA:::GTCTTGTGATGTCGCT
<i>P. ulcerata</i> 2	(3)	[59]	GGGCCC GGTAAT: TGGCTTTTCTACTTTTCAAAAAAGAAAAGTCTTGTGATGTCGCT
<i>P. ulcerata</i> 2	(1)	[57]	GGGCCC GGTAAT: TGGCTTTTCTACTTTTCAAAAAA:::GTCTTGTGATGTCGCT
<i>P. ulcerata</i> 2	(1)	[56]	GGGCCC GGTAAT: TGGCTTTTCTACTTTTCAAAAAAGAAA::GTCTTGTGATGTCGCT
<i>P. didactyla</i> 1	(5)	[50]	GGGCCC GGTAATGGATTTTTTATTFTTAAAAAG:::TCTTGTGATGTCGCT
<i>P. didactyla</i> 2	(2)	[52]	GGGCCC GGTAATGGATTTTTTTTTT:::AAAAAAGAACTCTTGTGATGTCGCT
<i>P. didactyla</i> 2	(1)	[53]	GGGCCC GGTAATGGATTTTTTTTTT:::AAAAAAGAACTCTTGTGATGTCGCT
<i>P. didactyla</i> 3	(6)	[44]	GGGCCC GGTAATGGATTTTTTTTTT:::AAAA:::GTCTTGTGATGTCGCT
<i>P. didactyla</i> 3	(1)	[45]	GGGCCC GGTAATGGATTTTTTTTTT:::AAAA:::GTCTTGTGATGTCGCT
<i>P. soredeiifera</i>	(7)	[42]	GGGCCC GGTAATGGATTTTTATAAGTCTTGTGATGTCGCT
<i>P. castanea</i>	(3)	[53]	GGGCCC GGTAATGGA: TTTTTTTTTTTT: AAAAAAAGTCTTGTGATGTCGCT
<i>P. castanea</i>	(1)	[54]	GGGCCC GGTAATGGAATTTTTTTTTTTT: AAAAAAAGTCTTGTGATGTCGCT
<i>P. castanea</i>	(1)	[50]	GGGCCC GGTAATGGA: TTTTTTTTTTTTAAAAA:::GTCTTGTGATGTCGCT

Clade 5 (*P. ponojensis/monticola* clade)

<i>P. antarctica</i>	(6)	[36]	GGGCAAGCGTGGTTT: GGCTTTTAA:::TGTGATGTCGCT
<i>P. ponojensis/monticola</i> 1a	(9)	[36]	GGGCAAGCGTGGTTT: GGCTTTTAA:::TGTGATGTCGCT
<i>P. ponojensis/monticola</i> 1b	(1)	[36]	GGGCAAGCGTGGTTT: GGCTTTTAA:::TGTGATGTCGCT
<i>P. ponojensis/monticola</i> 2	(3)	[36]	GGGCAAGCGTGGTTT: GGCTTTTAA:::TGTGATGTCGCT
<i>P. ponojensis/monticola</i> 3	(1)	[32]	GGG:::G:::GGTTT: GGCTTTTAA:::TGTGATGTCGCT
<i>P. ponojensis/monticola</i> 4	(4)	[34]	GGG:::GCGGGTTT: GGCTTTTAA:::TGTGATGTCGCT
<i>P. ponojensis/monticola</i> 5a	(2)	[32]	GGG:::G:::GGTTT: GGCTATTAA:::TGTGATGTCGCT
<i>P. ponojensis/monticola</i> 5b	(1)	[32]	GGG:::G:::GGTTT: GGCTATTAA:::TGTGATGTCGCT
<i>P. ponojensis/monticola</i> 8	(6)	[32]	GGG:::G:::GGTTT: GGCTTTTAA:::TGTGATGTCGCT
<i>P. sp.</i> 17	(6)	[44]	GGG:::G:::GGTTT: GGCTTTTATT: AAAAAGTTTGTGATGTCGCT
<i>P. sp.</i> 17	(1)	[45]	GGG:::G:::GGTTT: GGCTTTTATT: AAAAAGTTTGTGATGTCGCT
<i>P. ponojensis/monticola</i> 6	(4)	[43]	GGG:::G:::GGTTT: GGCTTTTATT: AAAAAGTTTGTGATGTCGCT
<i>P. ponojensis/monticola</i> 6	(1)	[38]	GGG:::G:::GGTTT: GGCTTTTATT: AAAAGTT::TGTGATGTCGCT

Clade 6 (*P. rufescens* clade)

S40

Clade 7 (*P. cinnamomea* clade)

[illegible]

S43