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DQ266038 Leptogium saturninum 1 Finland
                                DQ266037 Leptogium saturninum 2 Finland
                                EU877526 Leptogium saturninum 3 France
                               LEU877527 Leptogium saturninum 4 Spain
                              L EU877528 Leptogium saturninum 5 USA
                             - DQ185310 Stangeria paradoxa England
                                 DQ185313 Nostoc muscorum soil France
                                DQ185317 Nostoc punctiforme soil France
                             AJ632030 Nostoc sp. Finland
                             DQ185262 Peltigera rufescens England
                            DQ185305 Peltigera lepidophora Canada
                            EF102329 Peltigera leucophlebia Finland
                            DQ185265 Geosiphon pyriforme Germany
                            KC437873 Peltigera praetextata Canada, BC
                            DQ185261 Peltigera canina
                              EU877466 Collema flaccidum 4 Spain
                              EU877465 Collema flaccidum 3 Spain
                            DQ266040 Collema flaccidum 1 Finland
                             <sup>1</sup> DQ266039 Collema flaccidum 2 Finland

    GQ184606 Collema flaccidum 5 USA

                             DQ185266 Anthoceros sp. Italy
                              DQ185314 Blasia pusilla Germany
                            L Z94892 Nostoc commune
                              DQ185287 Peltigera canina USA
                              Z94889 Nostoc sp.
                             Z94889 NUSIOU Sp.
EU877477 Collema polycarpon 1 Spain
                                       Peltigera gowardii HV13, HV22, P1418, P1419, P1421,
                                     Peltigera gowardii P1417
                                                                                   P1422
                                     Peltigera gowardii P1420
                                     Peltigera gowardii P1423, P1429
                                       Peltigera hydrothyria HV3, HV4, HV6, HV7, HV25, P1496, Peltigera hydrothyria P1493 P1498, P1845, P1494
                                                                         P1498, P1845, P1494
                                    Peltigera aquatica HV16, HV19
                                    Peltigera aquatica HV12
Section Hydrothyriae
                                         Peltigera hydrothyria HV20, P1492
                                         Peltigera hydrothyria P1495, P1497
                                         Peltigera hydrothyria HV21
                                         Peltigera hydrothyria HV2
                                 Peltigera aquatica HV18
                                Peltigera aquatica HV17, P1430, P1434
                                DQ185268 Blasia pusilla Germany
                                DQ185316 Geosiphon pyriforme Germany
                                DQ185315 Gunnera manicata Germany
                                DQ185269 Blasia pusilla Germany
                                DQ185282 Peltigera canina USA
                                DQ185283 Peltigera membranacea USA
                           L EU877473 Collema nigrescens 2 Spain
                                 EU877514 Leptogium magnusonii 1 Spain
                                 EU877512 Leptogium magnusonii 3 Sweden
                                 EU877516 Leptogium magnusonii 6 Spain
                                EU877517 Leptogium magnusonii Sweden
                                EU877515 Leptogium magnusonii 2 Spain
                                EU877513 Leptogium magnusonii 4 Denmark
                               EU877482 Collema tenax 2 Spain
                              L EU877467 Collema undulatum 2 Spain
                             DQ185280 Nostoc commune soil USA
                               KC437914 Peltigera neopolydactyla
                             DQ185273 Collema crispum 2 Germany
                             DQ185267 Encephalartos natalensis Italy
                              EU877481 Collema tenax 3 Spain
                               EF102335 Peltigera membranacea Finland
                             TEF102346 Peltigera sp. Finland
                              DQ185270 Anthoceros sp. Germany
                              KC437900 Peltigera neocanina Canada, BC
                                KC437801 Peltigera leucophlebia Canada, BC
                                EU877460 Collema crispum 1 Spain
                               EU877530 Leptogium schraderi 1 Spain
                               DQ185271 Peltigera rufescens
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| DQ185274 Peltigera rufescens Germany |
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| DQ185276 Peltigera rufescens Germany |
| DQ185272 Peltigera rufescens Germany |
| DQ185277 Peltigera didactyla Germany |
| DQ185278 Peltigera rufescens Germany |
| DQ185308 Peltigera rufescens Poland |
| III II DQ185279 Peltigera canina Germany |
| KC437743 <i>Peltigera neckeri</i> Canada, BC |
| ¶Ч ^L Z94891 <i>Nostoc</i> sp. |
| KC437817 <i>Peltigera leucophlebia</i> Canada, BC |
| └─_ Z94890 <i>Nostoc</i> sp. |
| EU877519 Leptogium pseudofurfuraceum 4 USA |
| EU877518 Leptogium pseudofurfuraceum 2 USA |
| EU877490 Leptogium brebissonii 1 Spain |
| ► KC437638 Peltigera collina Canada, BC |
| EU877468 Collema undulatum 1 Spain EU877470 Collema furfuraceum 4 Croatia |
| KC437741 Peltigera membranacea Canada, BC |
| DQ185260 Peltigera membranacea Canada |
| - KC437745 Peltigera horizontalis Canada, BC |
| DQ185306 Peltigera membranacea Russia |
| DQ185284 Peltigera membranacea USA |
| EF102327 Peltigera leucophlebia Finland |
| EF102345 Peltigera praetextata Finland |
| EF102332 Peltigera leucophlebia Finland |
| J ^Ч EF102330 <i>Peltigera leucophlebia</i> Finland |
| EU877504 <i>Leptogium furfuraceum</i> 3 Portugal |
| EU877503 Leptogium furfuraceum 2 Portugal |
| EU877499 Leptogium furfuraceum 5 Spain |
| EU877502 Leptogium furfuraceum 1 Croatia |
| U EU877498 Leptogium furfuraceum 4 Spain |
| EU877496 Leptogium cyanescens 2 USA |
| EU877505 Leptogium gelatinosum 3 Spain |
| L EU877485 Leptogium austroamericanum 1 Argentina |
| EU877484 Leptogium austroamericanum 2 Colombia EU877486 Leptogium azureum 3 Brazil |
| KC437910 Peltigera neopolydactyla |
| DQ266035 Peltigera neopolydactyla Finland |
| DQ185281 Peltigera neopolydactyla USA |
| KC437835 Peltigera membranacea Canada, BC |
| EF102336 Peltigera neopolydactyla Finland |
| L DQ185307 Peltigera membranacea Canada |
| ☐ AJ632063 Nostoc calcicola Czech Republic |
| AJ632064 Nostoc calcicola Czech Republic |
| KC437676 Peltigera britannica Canada, BC |
| DQ185275 Peltigera rufescens Germany |
| KC437911 Peltigera leucophlebia Canada, BC |
| KC437789 Peltigera leucophlebia Canada, BC |
| KC437876 Peltigera neopolydactyla Canada, BC |
| KC437826 Peltigera leucophlebia Canada, BC KC437665 Peltigera aphthosa Canada, BC |
| DQ185312 Peltigera aphthosa Switzerland |
| KC437711 Peltigera praetextata Canada, BC |
| KC437699 <i>Peltigera canina</i> Canada, BC |
| EF102334 Peltigera membranacea Finland |
| DQ185303 Peltigera degenii Canada |
| EF102337 Peltigera neopolydactyla Finland |
| DQ266034 Peltigera degenii Finland |
| KC437874 Peltigera membranacea Canada BC |
| DQ266036 Massalongia carnosa Finland |
| ∥ ฝ ^L DQ185289 <i>Leptogium gelatinosum</i> 2 USA |
| DQ266031 Stereocaulon tomentosum Argentin |
| □ DQ185292 Massalongia carnosa USA |
| KC437907 Nephroma arcticum |
| KC437908 Peltigera neopolydactyla |
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| EU877489 <i>Leptogium brebissonii</i> 2 Spain - EU877469 <i>Collema furfuraceum</i> 3 Spain |
| EF102301 <i>Lobaria pulmonaria</i> Finland |
| FU877478 Collema subnigrescens 2 Portugal |

Extended Cluster I

- EU877463 Collema fasciculare 1 Spain EU877471 Collema furfuraceum 2 Portugal EU877475 Collema nigrescens 1 Spain EU877472 Collema furfuraceum 1 USA EU877493 *Leptogium corticola* 1 Costa Rica EU877494 *Leptogium corticola* 2 USA L DQ185291 *Lobaria hallii* USA EU877524 Leptogium pulvinatum 1 Spain - EU877523 Leptogium pulvinatum 2 Spain DQ185309 Cycas circinalis Brazil EU877521 Leptogium pseudofurfuraceum 1 Argentina EU877520 Leptogium pseudofurfuraceum 3 USA EU877491 Leptogium corniculatum 1 Spain EU877506 Leptogium gelatinosum 1 Spain F EU877492 *Leptogium corniculatum* 2 Spain EU877522 *Leptogium pseudofurfuraceum* 5 Argentina L EU877461 Collema auriforme 2 Spain - EU877476 Collema polycarpon 2 Spain EU877529 Leptogium scharderii 2 Spain AJ632065 Nostoc edaphicum Czech Republic LEU877462 Collema auriforme 1 Spain └ EU877483 Collema tenax 1 Spain EF102298 Lobaria pulmonaria Finland EF102315 Nephroma parile Finland EF102314 Nephroma parile Finland KC437844 Nephroma parile Canada, BC EF102302 Lobaria pulmonaria Finland EF102303 Lobaria pulmonaria Finland EF102304 Lobaria pulmonaria Finland DQ185318 Sticta fuliginosa USA DQ185290 Lobaria amplissima Austria DQ185286 Sticta beauvoisii USA EU877474 Collema nigrescens 3 Spain EU877464 Collema fasciculare 2 Spain EF102300 Lobaria pulmonaria Finland EF102299 Lobaria pulmonaria Finland DQ266021 Pseudocyphellaria crocata Mauritius EU877480 Collema subnigrescens 3 Portugal DQ266003 Pseudocyphellaria clathrata Brazil EF102306 Nephroma bellum Finland EF102318 Nephroma resupinatum Finland DQ185293 Nephroma bellum Austria EF102322 Parmeliella triptophylla Finland EF102296 Lobaria pulmonaria Finland KC437843 Nephroma bellum Canada, BC KC437909 Nephroma resupinatum EF102323 Parmeliella triptophylla Finland EU877495 Leptogium cyanescens 3 Panama DQ266019 Pseudocyphellaria crocata Thailand DQ185294 Nephroma helveticum Canada DQ266018 Pseudocyphellaria mallota Argentina EF102347 Pseudocyphellaria crocata Madeira EF102320 Nephroma tangeriense Madeira DQ266001 Lobaria amplissima Norway EF102295 Degelia plumbea Madeira KC437915 Lobaria kurokawae China L KC437913 *Lobaria kurokawae* China DQ266013 Pseudocyphellaria intricata Argentina DQ266020 Pseudocyphellaria intricata Reunion Island DQ266006 Pseudocyphellaria intricata Argentina DQ266007 Pseudocyphellaria hirsuta Argentina KC437912 Peltigera neopolydactyla DQ266022 Pseudocyphellaria coriifolia Argentina DQ185295 Pannaria conoplea Austria DQ266015 Pseudocyphellaria crocata Argentina DQ266008 Pseudocyphellaria scabrosa Argentina DQ266005 Pseudocyphellaria coriifolia Argentina DQ266016 Pseudocyphellaria coriifolia Argentina DQ266012 Pseudocyphellaria crocata Argentina DQ266009 Pseudocyphellaria crocata Argentina

Subclade 3

