**Table 1 *Parnassia* species sampled, voucher information and GenBank accession number**

| No. | Taxon | Collection sites | Verification | *rbcL* | *matK* | *psbA_trnH* | ITS |
|---|---|---|---|---|---|---|---|
| 1 | *P. asarifolia* 0816 | South Carolina, USA | PROP.s.n 0816 | JF802206 | JF802402 | JF802307 | JF811037 |
| 2 | *P. asarifolia* 1027 | Tennessee, USA | V.E. Mcneilus 1027 | JF802207 | JF802403 | JF802308 | JF811038 |
| 3 | *P. asarifolia* 7103 | Virginia, USA | L. Arrtz & Marlin P.K. 7103 | JF802208 | JF802404 | JF802309 | JF811039 |
| 4 | *P. brevistyla* 05051 | Xiangelila,Yunnan, China | Yuwp05051 | JF802209 | JF795348 | JF795368 | JF795358 |
| 5 | *P. brevistyla* 05090 | Daocheng, Sichuan, China | Wud05090 | JF802210 | JF795349 | JF795369 | JF795359 |
| 6 | *P. brevistyla* 1177 | Daofu, Sichuan, China | Lidz1177 | JF802211 | JF795350 | JF795370 | JF795360 |
| 7 | *P. brevistyla* 1288 | Xiangcheng, Sichuan, China | Lidz1288 | JF802212 | JF795351 | JF795371 | JF795361 |
| 8 | *P. chinesis* 03003 | Yangbi, Yunnan, China | Yuejp03003 | JF802213 | JF795352 | JF795372 | JF795362 |
| 9 | *P. chinesis* 04003 | Yangbi, Yunnan, China | Wangh04003 | JF802214 | JF795353 | JF795373 | JF795363 |
| 10 | *P. chinesis* 119_1 | Yangbi, Yunnan, China | WW119_1 | JF802215 | JF795354 | JF795374 | JF795364 |
| 11 | *P. chinesis* 119_2 | Yangbi, Yunnan, China | WW119_2 | JF802216 | JF795355 | JF795375 | JF795365 |
| 12 | *P. chinesis* 119_3 | Yangbi, Yunnan, China | WW119_3 | JF802217 | JF795356 | JF795376 | JF795366 |
| 13 | *P. delavayi* 02014 | Wenchuan, Sichuan, China | Wud02014 | JF802219 | JF802405 | JF802310 | JF811040 |
| 14 | *P. delavayi* 02004 | Lijiang, Yunnan, China | Wud02004 | JF802218 | JF795357 | JF795377 | JF795367 |
| 15 | *P. delavayi* 091522 | Deqin, Yunnan, China | MM091522 | JF802220 | JF802406 | JF802311 | JF811041 |
| 16 | *P. delavayi* 127 | Gongshan, Yunnan, China | WZW127 | JF802221 | JF802407 | JF802312 | JF811042 |
| 17 | *P. delavayi* 1413 | Lijiang, Yunnan, China | 09cs1413 | JF802222 | JF802408 | JF802313 | JF811043 |
| 18 | *P. delavayi* 1553 | Lijiang, Yunnan, China | Lidz1553 | JF802223 | JF802409 | JF802314 | JF811044 |
| 19 | *P. deqinensis* 03064 | Deqin, Yunnan, China | Wangh03064 | JF802224 | JF802410 | JF802315 | JF811045 |
| 20 | *P. deqinensis* 05178 | Deqin, Yunnan, China | Wud05178 | JF802225 | JF802411 | JF802316 | JF811046 |
| 21 | *P. deqinensis* 091569 | Linzhi, Tibet, China | MM091569 | JN105081 | JN105082 | JN105083 | JN105084 |
| 22 | *P. dilatata* 020_5 | Longsheng, Guangxi, China | WPW020_5 | JF802228 | JF802414 | JF802319 | JF811049 |

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|---|---|---|---|---|---|---|---|
| 23 | *P. dilatata* 020_10 | Longsheng, Guangxi, China | WPW020_10 | JF802226 | JF802412 | JF802317 | JF811047 |
| 24 | *P. dilatata* 020_20 | Longsheng, Guangxi, China | WPW020_20 | JF802227 | JF802413 | JF802318 | JF811048 |
| 25 | *P. epuctulata* 03890 | Qiaojia, Yunnan, China | Wangh03890 | JF802229 | JF802415 | JF802320 | JF811050 |
| 26 | *P. epuctulata* 1526 | Dongchuan, Yunnan, China | Lidz1526 | JF802230 | JF802416 | JF802321 | JF811051 |
| 27 | *P. esquirolii* 900_1 | Pingbian, Yunnan, China | Wud900_1 | JF802231 | JF802417 | JF802322 | JF811052 |
| 28 | *P. esquirolii* 900_3 | Pingbian, Yunnan, China | Wud900_2 | JF802232 | JF802418 | JF802323 | JF811053 |
| 29 | *P. faberi* 02013 | Xuyong, Sichuan, China | Wud02013 | JF802233 | JF802419 | JF802324 | JF811054 |
| 30 | *P. faberi* 02017 | Emeishan, Sichuan, China | Wud02017 | JF802234 | JF802420 | JF802325 | JF811055 |
| 31 | *P. faberi* 03013 | Yiliang, Yunnan, China | Wud03013 | JF795346 | JF802421 | JF802326 | JF811056 |
| 32 | *P. faberi* 0901_1 | Emeishan, Sichuan, China | WYP0901_1 | JF802235 | JF802422 | JF802327 | JF811057 |
| 33 | *P. faberi* 0901_2 | Emeishan, Sichuan, China | WYP0901_2 | JF802236 | JF802423 | JF802328 | JF811058 |
| 34 | *P. faberi* 0907 | Yiliang, Yunnan, China | RZX0907 | JF802237 | JF802424 | JF802329 | JF811059 |
| 35 | *P. farreri* 03051 | Gongshan, Yunnan, China | Chenjh03051 | JF802238 | JF802425 | JF802330 | JF811060 |
| 36 | *P. farreri* 126 | Gongshan, Yunnan, China | WZW126 | JF802239 | JF802426 | JF802331 | JF811061 |
| 37 | *P. farreri* 2319 | Gongshan, Yunnan, China | Gaolm2319 | JF802240 | JF802427 | JF802332 | JF811062 |
| 38 | *P. foliosa* 0905_1 | Anfu, Jiangxi, China | WYP0905_1 | JF802241 | JF802428 | JF802333 | JF811063 |
| 39 | *P. foliosa* 0905_2 | Anfu, Jiangxi, China | WYP0905_2 | JF802242 | JF802429 | JF802334 | JF811064 |
| 40 | *P. foliosa* 0905_3 | Anfu, Jiangxi, China | WYP0905_3 | JF802243 | JF802430 | JF802335 | JF811065 |
| 41 | *P. foliosa* 09130 | Mount Lu, Jiangxi, China | Wud09130 | JF802244 | JF802431 | JF802336 | JF811066 |
| 42 | *P. grandifolia* 1512 | Tennessee, USA | W.B. Mcpougall 1512 | JF802245 | JF802432 | JF802337 | JF811067 |
| 43 | *P. grandifolia* 23596 | Oklahonia, USA | John Taylor 23596 | JF802246 | JF802433 | JF802338 | JF811068 |
| 44 | *P. guilinensis* 012_1 | Xing'an, Guangxi, China | WPW012_1 | JF802247 | JF802434 | JF802339 | JF811069 |
| 45 | *P. guilinensis* 012_2 | Xing'an, Guangxi, China | WPW012_2 | JF802248 | JF802435 | JF802340 | JF811070 |
| 46 | *P. guilinensis* 04042 | Xing'an, Guangxi, China | Wud04042 | JF802249 | JF802436 | JF802341 | JF811071 |
| 47 | *P. kangdingensis* 108_11 | Luding, Sichuan, China | WPW108_11 | JF802250 | JF802437 | JF802342 | JF811072 |

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|---|---|---|---|---|---|---|---|
| 48 | *P. kangdingensis* 108_2 | Luding, Sichuan, China | WPW108_2 | JF802251 | JF802438 | JF802342 | JF811073 |
| 49 | *P. kotzebuei* 203 | Alaska, USA | G.A. Halliday203 | JF802252 | JF802439 | JF802344 | JF811074 |
| 50 | *P. kotzebuei* 5634 | Magadan, Rassia | T. Vornova5634 | JF802253 | JF802440 | JF802345 | JF811075 |
| 51 | *P. leptophylla* 0902_4 | Emeishan, Sichuan, China | WYP0902_4 | JF802254 | JF802441 | JF802346 | JF811076 |
| 52 | *P. leptophylla* 0902_8 | Emeishan, Sichuan, China | WYP0902_8 | JF802255 | JF802442 | JF802347 | JF811077 |
| 53 | *P. longipetala* 08029 | Yadong, Tibet, China | Jinxh08029 | JF802256 | JF802443 | JF802348 | JF811078 |
| 54 | *P. longipetala* 09945 | Chayu, Tibet, China | Jinxh09945 | JF802257 | JF802444 | JF802349 | JF811079 |
| 55 | *P. lutea* 0339 | Xiangelila, Yunnan, China | Yuejp0339 | JF802258 | JF802445 | JF802350 | JF811080 |
| 56 | *P. lutea* 9460 | Huzhu, Qinghai, China | GBZ9460 | JF802259 | JF802446 | JF802351 | JF811081 |
| 57 | *P. mysorensis* 02010 | Qiaojia, Yunnan, China | Wud02010 | JF802260 | JF802447 | JF802352 | JF811082 |
| 58 | *P. mysorensis* 090727 | Weixi, Yunnan, China | Zhangsd090727 | JF802261 | JF802448 | JF802353 | JF811083 |
| 59 | *P. mysorensis* 090835 | Zhaojue, Sichuan, China | Zhangsd090835 | JF802262 | JF802449 | JF802354 | JF811084 |
| 60 | *P. mysorensis* 123 | Lijiang, Yunnan, China | WW123 | JF802263 | JF802450 | JF802355 | JF811085 |
| 61 | *P. mysorensis* 131 | Songming, Yunnan, China | WCW131 | JF802264 | JF802451 | JF802356 | JF811086 |
| 62 | *P. noemiae* 083_1 | Luding, Sichuan, China | WPW083_1 | JN188289 | JN188288 | JN188290 | JN188291 |
| 63 | *P. noemiae* 083_2 | Luding, Sichuan, China | WPW083_2 | JF802266 | JF802453 | JF802358 | JF811088 |
| 64 | *P. nubicola* 28 | Sagarmatha, Nepal | MF28 | JF795344 | JF802455 | JF802360 | JF811090 |
| 65 | *P. nubicola* 1496 | Nielamu, Tibet, China | Exp1496 | JF795345 | JF802454 | JF802359 | JF811089 |
| 66 | *P. palustris* 020672 | Texel island, Netherlands | Peter Warten 020672 | JF802267 | JF802456 | JF802361 | JF811091 |
| 67 | *P. palustris* 06050 | Mount Changbai, Heilongjiang, China | Gaolm06050 | JF802268 | JF802457 | JF802362 | JF811092 |
| 68 | *P. palustris*138 | Hakkari, Turkey | Duncan & Tait 138 | JF802270 | JF802459 | JF802364 | JF811094 |
| 69 | *P. palustris* 249 | Kamchatka, Russia | N.A. Brjummitt, Bridger M.A 249 | JF795347 | JF802460 | JF802365 | JF811095 |
| 70 | *P. palustris* 1001_3 | Mount Wutai, Shanxi, China | Wud1001_3, | JF802269 | JF802458 | JF802363 | JF811093 |

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| 71 | *P. perciliata* 026_1 | Nanchuan, Chongqing, China | WPW026_1 | JF802271 | JF802461 | JF802366 | JF811096 |
| 72 | *P. perciliata* 026_10 | Nanchuan, Chongqing, China | WPW026_10 | JF802272 | JF802462 | JF802367 | JF811097 |
| 73 | *P. perciliata* 281 | Nanchuan, Chongqing, China | Lujm281 | JF802273 | JF802463 | JF802368 | JF811098 |
| 74 | *P. submysorensis* 03002 | Xiangelila, Yunnan, China | Wangh03002 | JF802274 | JF802464 | JF802369 | JF811099 |
| 75 | *P. submysorensis* 05198 | Xiangelila, Yunnan, China | Wud05198 | JF802275 | JF802465 | JF802370 | JF811100 |
| 76 | *P. tenella* 02002 | Yangbi, Yunnan, China | Wud02002 | JF802276 | JF802466 | JF802371 | JF811101 |
| 77 | *P. tenella* 103062 | Lijiang, Yunnan, China | GLM103062 | JF802277 | JF802467 | JF802372 | JF811102 |
| 78 | *P. tenella* 120 | Yangbi, Yunnan, China | WW120 | JF802278 | JF802468 | JF802373 | JF811103 |
| 79 | *P. tenella* 125_1 | Lijiang, Yunnan, China | WW125_1, | JF802279 | JF802469 | JF802374 | JF811104 |
| 80 | *P. tenella* 125_11 | Lijiang, Yunnan, China | WW125_11, | JF802280 | JF802470 | JF802375 | JF811105 |
| 81 | *P. trinervis* 0193 | Nierong, Tibet, China | Wud0193 | JF802281 | JF802471 | JF802376 | JF811106 |
| 82 | *P. trinervis* 03124 | Yanyuan, Sichuan, China | Yuejp03124 | JF802283 | JF802473 | JF802378 | JF811108 |
| 83 | *P. trinervis* 05130 | Ganzi, Tibet, China | Wud05130 | JF802284 | JF802474 | JF802379 | JF811109 |
| 84 | *P. trinervis* 2100 | Nacuo, Tibet, China | Chenjh2100 | JF802285 | JF802475 | JF802380 | JF811110 |
| 85 | *P. venusta* 129 | Gongshan, Yunnan, China | WZW129 | JF802286 | JF802476 | JF802381 | JF811111 |
| 86 | *P. venusta* 129_3 | Gongshan, Yunnan, China | WZW129_3 | JF802287 | JF802477 | JF802382 | JF811112 |
| 87 | *P. venusta* 2322 | Gongshan, Yunnan, China | Gaolm2322 | JF802288 | JF802478 | JF802383 | JF811113 |
| 88 | *P. viridiflora* 03065 | Deqin, Yunnan, China | Wangh03065 | JF802289 | JF802479 | JF802384 | JF811114 |
| 89 | *P. viridiflora* 090664 | Deqin, Yunnan, China | Zhangsd090664 | JF802290 | JF802480 | JF802385 | JF811115 |
| 90 | *P. wightiana* 007 | Wuming, Guangxi, China | WPW007 | JF802291 | JF802481 | JF802386 | JF811116 |
| 91 | *P. wightiana* 019 | Xing'an, Guangxi, China | WPW019 | JF802292 | JF802482 | JF802387 | JF811117 |

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| 92 | *P. wightiana* 024 | Jiangkou, Guizhou, China | WPW024 | JF802294 | JF802484 | JF802389 | JF811119 |
| 93 | *P. wightiana* 124 | Lijiang, Yunnan, China | WW124 | JF802298 | JF802488 | JF802393 | JF811123 |
| 94 | *P. wightiana* 128 | Gongshan, Yunnan, China | WZW128 | JF802299 | JF802489 | JF802394 | JF811124 |
| 95 | *P. wightiana* 246 | Xiangerila, Yunnan, China | Lujm246 | JF802301 | JF802491 | JF802396 | JF811126 |
| 96 | *P. wightiana* 02012 | Yiliang, Yunnan, China | Wud02012 | JF802293 | JF802483 | JF802388 | JF811118 |
| 97 | *P. wightiana* 0904 | Emeishan, Sichuan, China | WYP0904 | JF802295 | JF802485 | JF802390 | JF811120 |
| 98 | *P. wightiana* 09483 | Zhongfang, Hunan, China | Lujm09483 | JF802297 | JF802487 | JF802392 | JF811122 |
| 99 | *P. wightiana* 090571 | Eryuan, Yunnan, China | Zhangsd090571 | JF802296 | JF802486 | JF802391 | JF811121 |
| 100 | *P. wightiana* 1388 | Lijiang, Yunnan, China | 09CS1388 | JF802300 | JF802490 | JF802395 | JF811125 |
| 101 | *P. yunanensis* 032_1 | Kangding, Sichuan, China | WPW032_1 | JF802303 | JF802493 | JF802398 | JF811128 |
| 102 | *P. yunanensis* 032_2 | Kangding, Sichuan, China | WPW032_2 | JF802304 | JF802494 | JF802399 | JF811129 |
| 103 | *P. yunanensis* 03066 | Deqin, Yunnan, China | Wangh03066 | JF802302 | JF802492 | JF802397 | JF811127 |
| 104 | *P. yunanensis* 04209 | Deqin, Yunnan, China | Caij04209 | JF802305 | JF802495 | JF802400 | JF811130 |
| *105* | *P. yunanensis* 05053 | Xiangerila, Yunnan, China | Yuwp05053 | JF802306 | JF802496 | JF802401 | JF811131 |