

TAXON

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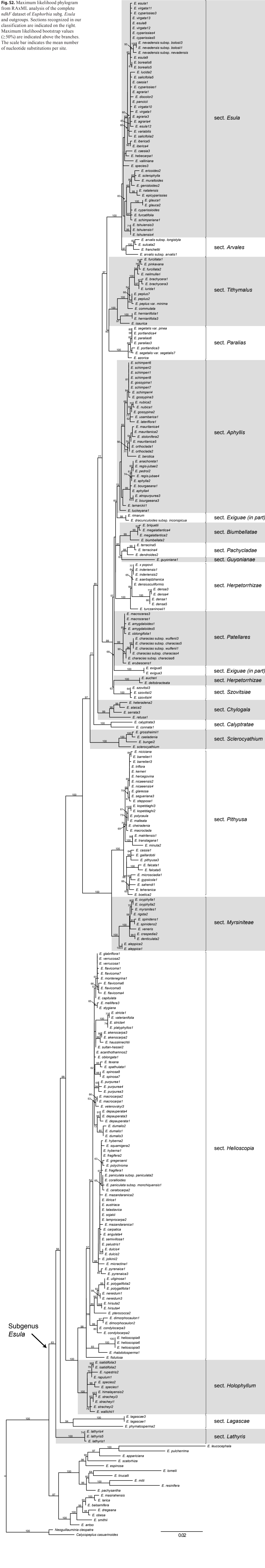
Electronic Supplement to

**A worldwide molecular phylogeny
and classification of the leafy spurges,
Euphorbia subgenus *Esula* (Euphorbiaceae)**

**Ricarda Riina, Jess A. Peirson, Dmitry V. Geltman, Julián Molero, Božo Frajman,
Amirhossein Pahlevani, Laia Barres, Jeffery J. Morawetz, Yasaman Salmaki,
Shahin Zarre, Aleksey Kryukov, Peter V. Bruyns & Paul E. Berry**

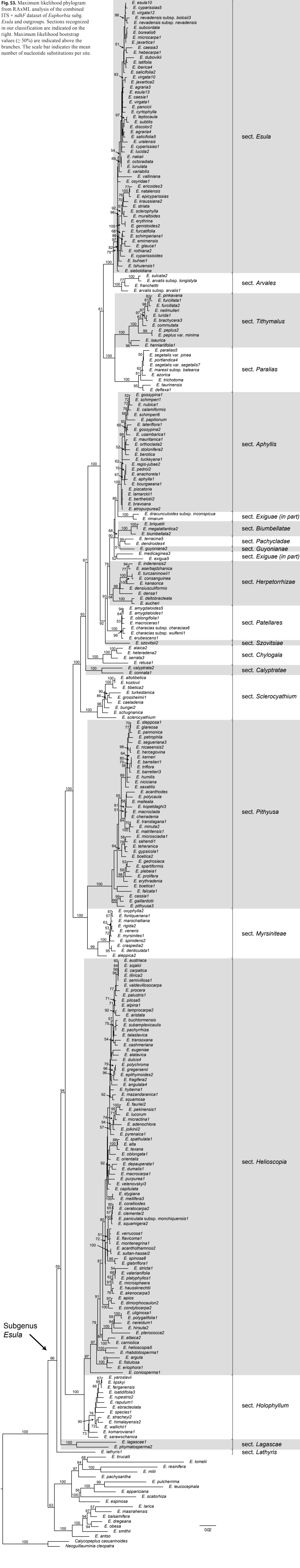
***Taxon* 62: 316–342**

Fig. S2. Maximum likelihood phylogram from RAxML analysis of the complete *ndhF* dataset of *Euphorbia* subg. *Esula* and outgroups. Sections recognized in our classification are indicated on the right. Maximum likelihood bootstrap values ($\geq 50\%$) are indicated above the branches. The scale bar indicates the mean number of nucleotide substitutions per site.



Subgenus *Esula*

Fig. 53. Maximum likelihood phylogram from RAxML analysis of the combined ITS + *ndhF* dataset of *Euphorbia* subg. *Esula* and outgroups. Sections recognized in our classification are indicated on the right. Maximum likelihood bootstrap values ($\geq 50\%$) are indicated above the branches. The scale bar indicates the mean number of nucleotide substitutions per site.



Subgenus *Esula* →

0.02

Appendix S1. Taxon, origin, voucher information (herbarium acronym), and ITS and *ndhF* GenBank accession numbers for samples included in the phylogenetic analyses. GenBank accession numbers for newly generated sequences are preceded by an asterisk (*). A region that was not sequenced for a particular sample is indicated by a dash (–).

Calycopeplus casuarinoides L.S. Sm., cult., *V. Steinmann 1407* (RSA), AF537580, JN249080; *Euphorbia acanthodes* Akhani, Iran, *H. Akhani 14782* (IRAN), *KC212160, –; *Euphorbia acanthothamnus* Heldr. & Sart. ex Boiss. 1, Greece, *R. Riina 1562* (MICH), HQ900573, –; *Euphorbia acanthothamnus* Heldr. & Sart. ex Boiss. 2, Greece, *R. Riina 1563* (MICH), JQ750879, JQ750756; *Euphorbia acanthothamnus* Heldr. & Sart. ex Boiss. 3, cult., *V. Steinmann 1425* (RSA), AF537554, –; *Euphorbia acanthothamnus* Heldr. & Sart. ex Boiss. 4, Greece, *R. Riina 1563 (duplicate)* (MICH), JN250103, JN249094; *Euphorbia adenochlora* C. Morren & Decne., Japan, *Oita 01393* (SAPS), *KC212161, –; *Euphorbia agraria* M. Bieb. 1, Bulgaria, *B. Frajman & P. Schönswetter 11257* (IB), JN010022, *KC212432; *Euphorbia agraria* M. Bieb. 2, Ukraine, *V. Byalt s.n.* (LE), GU984309, –; *Euphorbia agraria* M. Bieb. 3, U.S.A., *P. Berry 7969* (MICH), *KC212162, *KC212433; *Euphorbia agraria* M. Bieb. 4, U.S.A., *R. McGregor 31711* (RM), *KC212163, *KC212434; *Euphorbia agraria* M. Bieb. 5, Serbia, *D. Geltman 183* (LE), *KC212164, –; *Euphorbia akenocarpa* Guss. 1, Spain, *B. Frajman 12516* (IB), JN010023, –; *Euphorbia akenocarpa* Guss. 2, Spain, *L. Barres & al. BCN53041 (duplicate)* (MICH), JN250108, JN249098; *Euphorbia akenocarpa* Guss. 3, Spain, *L. Barres & al. BCN53041* (BCN), HQ900574, *KC212435; *Euphorbia alaiica* (Prokh.) Prokh. 1, Kyrgyzstan, *G. Lazkov s.n. (duplicate)* (LE), GU984323, –; *Euphorbia alaiica* (Prokh.) Prokh. 2, Kyrgyzstan, *G. Lazkov s.n.* (LE), *KC212165, *KC212436; *Euphorbia alataunica* Boiss., Kyrgyzstan, *G. Lazkov s.n.* (LE), GU953741, –; *Euphorbia aleppica* L. 1, Iran, *H. Akhani s.n.* (Herb. Akhani), –; *KC212437; *Euphorbia aleppica* L. 2, Iran, *Y. Salmaki & al. 39899* (TUH), *KC212166, *KC212438; *Euphorbia alpina* Ledeb. 1, Russia, *P. Berry 7980* (MICH), *KC212167, –; *Euphorbia alpina* Ledeb. 2, Russia, *P. Berry 7983* (MICH), *KC212168, –; *Euphorbia alta* Norton, U.S.A., *A. Sanders 5905* (RSA), AF537553, –; *Euphorbia altaica* Ledeb. 1, Russia, *D. Geltman 143* (LE), *KC212169, –; *Euphorbia altaica* Ledeb. 2, Russia, *D. Geltman 27* (LE), GU979429, –; *Euphorbia altaica* Ledeb. 3, Russia, *P. Berry 8002* (MICH), *KC212170, –; *Euphorbia altotibetica* Paulsen in S. Hedin, China, *H. Ting Meng & al. 400* (PE), *KC212171, –; *Euphorbia amygdaloides* L. 1, Bosnia, *M. Turjak & B. Frajman 11821* (IB), JN010024, *KC212439; *Euphorbia amygdaloides* L. 2, Serbia, *D. Geltman 194* (LE), *KC212172, –; *Euphorbia amygdaloides* L. 3, Spain, *J. Molero 19/2007* (BCN), HQ900575, –; *Euphorbia amygdaloides* L. 4, cult., *V. Steinmann 1428* (RSA), AF537544, –; *Euphorbia amygdaloides* L. 5, U.S.A. cult., *B. van Ee 743* (US), JN250111, JN249101; *Euphorbia anachoreta* Svent. 1, Spain, *B. Dorsey 18* (MICH), *KC212173, *KC212440; *Euphorbia anachoreta* Svent. 2, Portugal, *no collector - cultivated* (BC), HQ900576, –; *Euphorbia angulata* Jacq. 1, Austria, *B. Frajman & P. Schönswetter 11105* (IB), JN010025, –; *Euphorbia angulata* Jacq. 2, Slovenia, *B. Frajman & P. Schönswetter 11134* (IB), JN010026, –; *Euphorbia angulata* Jacq. 3, Spain, *J. Molero & A. Rovira BCN53622* (MICH), *KC212174, –; *Euphorbia angulata* Jacq. 4, Germany, *J. Esser 06–26* (M), *KC212175, *KC212441; *Euphorbia antso* Denis, cult., *V. Steinmann 1473* (RSA), JN250112, JN249102; *Euphorbia aphylla* Brouss. ex Willd. 1, Spain, *B. Dorsey 4 (duplicate)* (MICH), KC019581, –; *Euphorbia aphylla* Brouss. ex Willd. 2, Spain, *B. Dorsey 4* (MICH), JN250113, JN249103; *Euphorbia aphylla* Brouss. ex Willd. 3, Spain, *J. Molero 2/2007* (BCN), HQ900577, –; *Euphorbia aphylla* Brouss. ex Willd. 4, cult., *V. Steinmann 1466* (RSA), AF537540, AF538225; *Euphorbia apios* L., Greece, *W. Gutermann 25543* (Herb. Gutermann), JN010027, –; *Euphorbia appariciona* Rizzini, cult., *V. Steinmann 1442* (RSA), JN250114, JN249104; *Euphorbia arguta* Banks & Sol., Cyprus, *R. Meikle 2237* (LE), *KC212176, –; *Euphorbia aristata* Schmalh., Russia, *D. Geltman s.n.* (LE), GU979434, –; *Euphorbia arvalis* subsp. *arvalis* Boiss. & Heldr. 1, Iran, *V. Mozaffarian & M. Norouzi 34533* (TARI), *KC212177, *KC212442; *Euphorbia arvalis* subsp. *arvalis* Boiss. & Heldr. 2, Armenia, *G. Fayvush & al. 1437* (LE), *KC212179, –; *Euphorbia arvalis* subsp. *longistyla* (Litard. & Maire) Molero, Rovira & Vicens, Morocco, *R. Riina 1788* (MICH), *KC212178, *KC212443; *Euphorbia aserbajdzhanica* Bordz., Iran, *A. Pahlevani & Asef 47796* (IRAN), *KC212180, *KC212444; *Euphorbia atropurpurea* Brouss. ex Willd. 1, Spain, *J. Molero 5/2007* (BCN), HQ900579, –; *Euphorbia atropurpurea* Brouss. ex Willd. 2, cult., *V. Steinmann 1489* (RSA), AF537542, –; *Euphorbia atropurpurea* Brouss. ex Willd. 3, Spain, *B. Dorsey 26* (MICH), –; *KC212445; *Euphorbia aucheri* Boiss., Iran, *S. Zarre & al. 38189* (TUH), *KC212181, *KC212446; *Euphorbia austriaca* A. Kern., Austria, *B. Frajman & P. Schönswetter 11382* (IB), JN010028, *KC212447; *Euphorbia azorica* Hochst. in M.A. Seubert, Portugal, *J. Molero & al. BCN 86828* (BCN), *KC212182, *KC212448; *Euphorbia balsamifera* Aiton, Spain, *B. Dorsey 3* (MICH), JN250117, JN249107; *Euphorbia barrelieri* Savi 1, Bulgaria, *B. Frajman & P. Schönswetter 11312* (IB), JN010029, *KC212449; *Euphorbia barrelieri* Savi 2, Italy, *R. Vilatersana & al. 1235 (duplicate)* (BC), HQ900583, –; *Euphorbia barrelieri* Savi 3, Italy, *R. Vilatersana & al. 1235* (BC), *KC212183, *KC212450; *Euphorbia berotica* N.E. Br., Angola, *P. Bruyns 10685* (BOL), *KC212184, *KC212451; *Euphorbia berthelotii* Bolle ex Boiss. 1, Spain, *B. Dorsey 54* (MICH), *KC212185, –; *Euphorbia berthelotii* Bolle ex Boiss. 2, Spain, *J. Molero 25/2007* (BCN), HQ900585, –; *Euphorbia biumbellata* Poir. 1, Spain, *B. Frajman 12550* (IB), JN010030, –; *Euphorbia biumbellata* Poir. 2, Spain, *J. Molero 26/2007 (duplicate)* (BCN), *KC212186, *KC212452; *Euphorbia biumbellata* Poir. 3, Spain, *J. Molero 26/2007* (BCN), HQ900586, –; *Euphorbia boetica* Boiss. 1, Spain, *J. Molero 18/2007* (BCN), *KC212187, –; *Euphorbia boetica* Boiss. 2, Spain, *J. Molero 22/2007* (BCN), –; *KC212453; *Euphorbia borealis* Baikov 1, Russia, *D. Geltman 114* (LE), *KC212188, –; *Euphorbia borealis* Baikov 2, Russia, *D. Geltman 19* (LE), *KC212189, –; *Euphorbia borealis* Baikov 3, Russia, *D. Geltman 48* (LE), *KC212190, –; *Euphorbia borealis* Baikov 4, Russia, *V. Nikitin & al. 469* (LE), GU984319, –; *Euphorbia borealis* Baikov 5, Russia, *P. Berry 7979* (MICH), *KC212191, *KC212454; *Euphorbia borealis* Baikov 6, Russia, *P. Berry 7982* (MICH), *KC212192, *KC212455; *Euphorbia bourgaeana* J. Gay ex Boiss. 1, Spain, *B. Dorsey 31* (MICH), *KC212193, *KC212456; *Euphorbia bourgaeana* J. Gay ex Boiss. 2, Spain, *J. Molero 11/2007* (BCN), HQ900587, –; *Euphorbia bourgaeana* J. Gay ex Boiss. 3, cult., *P. Berry 7851* (MICH), JN250121, JN249111; *Euphorbia brachycera* Engelm. 1, U.S.A., *P. Berry 7968* (MICH), –; *KC212457; *Euphorbia brachycera* Engelm. 2, U.S.A., *V. Steinmann 1429* (RSA), AF537533, –; *Euphorbia brachycera* Engelm. 3, U.S.A., *B. van Ee 1010* (MICH), *KC212194, *KC212458; *Euphorbia bravoana* Svent., Spain, *A. Fernández-Lopez & J. Molero 08/2007* (BCN), HQ900588, –; *Euphorbia briquetii* Emb. & Maire, Morocco, *R. Riina 1801* (MICH), *KC212195, *KC212459; *Euphorbia buchtomensis* Ledeb., Kazakhstan, *S. Smirnov s.n.* (LE), *KC212196, –; *Euphorbia buhsei* Boiss. 1, Turkmenistan, *D. Kurbanov s.n.* (LE), *KC212197, –; *Euphorbia buhsei* Boiss. 2, Iran, *S. Zarre & al. 39972* (TUH), JF732987, –; *Euphorbia bungei* Boiss. 1, Turkmenistan, *V. Botschantsev 82* (LE), *KC212198, –; *Euphorbia bungei* Boiss. 2, Iran, *Y. Salmaki 39930* (TUH), *KC212199, *KC212460; *Euphorbia caeladenia* Boiss., Iran, *A. Pahlevani & Bahramishad 53777* (IRAN), *KC212200, *KC212461; *Euphorbia caesia* Kar. & Kir. 1, Austria, *W. Till 12591* (IB), JN010031, *KC212462; *Euphorbia caesia* Kar. & Kir. 2, Russia, *A. Muldashev & A. Galeeva 89* (LE), GU984318, –; *Euphorbia caesia* Kar. & Kir. 3, Russia, *P. Berry 7991* (MICH), –; *KC212463; *Euphorbia calamiformis* P.R.O. Bally & S. Carter, Kenya, *S. Carter & B. Stannard 558* (K), HQ900589, –; *Euphorbia calytrata* Coss. & Durieu 1, Morocco, *E. Batriu & al. s.n.* (BCN), HQ900590, –; *Euphorbia calytrata* Coss. & Durieu 2, Morocco, *R. Riina 1810 (duplicate)* (MICH), *KC212201, –; *Euphorbia calytrata* Coss. & Durieu 3, Morocco, *R. Riina 1810* (MICH), JN250123, JN249113; *Euphorbia calytrata* Coss. & Durieu 4, Morocco, *D. Podlech 45138* (RSA), AF537549, –; *Euphorbia capitulata* Rehb., Bosnia, *M. Turjak & B. Frajman 11838* (IB), JN010032, *KC212465; *Euphorbia carniolica* Jacq., Bosnia, *M. Turjak & B. Frajman 11836* (IB), JN010033, –; *Euphorbia carpatica* Wol., Romania, *A. Csörgő 12463* (IB), JN010034, *KC212466; *Euphorbia cashmeriana* Royle, Afghanistan, *L. Edelberg 781* (W), HQ900592, –; *Euphorbia cassia* Boiss. 1, Cyprus, *M. Galbany & al. 2035 (duplicate)* (BC), *KC212202, *KC212467; *Euphorbia cassia* Boiss. 2, Cyprus, *M. Galbany & al. 2035* (BC), HQ900593, –; *Euphorbia ceratocarpa* Ten. 1, Italy, *R. Vilatersana & al. 1141* (BC), HQ900594, –; *Euphorbia ceratocarpa* Ten. 2, Italy, *R. Vilatersana & al. 1141 (duplicate)* (BC), *KC212203, *KC212468; *Euphorbia characias* subsp. *characias* L. 1, France, *B. Frajman & P. Schönswetter 11443* (IB), JN010036, –; *Euphorbia characias* subsp. *characias* L. 2, Ukraine, *V. Byalt & al. 293* (LE), GU984304, –; *Euphorbia characias* subsp. *characias* L. 3, Spain, *L. Barres 21* (BC), HQ900595, –; *Euphorbia characias* subsp. *characias* L. 4, Greece, *R. Riina 1559* (MICH), *KC212204, *KC212469; *Euphorbia characias* subsp. *characias* L. 5, U.S.A., *B. van Ee 718* (US), JN250125, JN249115; *Euphorbia characias* subsp. *characias* L. 6, France, *P. Berry 7917* (MICH), *KC212205, *KC212470; *Euphorbia characias* subsp. *wulfenii* (Hoppe ex W. Koch) Radcl.-Sm. 1, Croatia, *B. Frajman & P. Schönswetter 11550* (IB), JN010120, *KC212684; *Euphorbia characias* subsp. *wulfenii* (Hoppe ex W. Koch) Radcl.-Sm. 2, cult., *P. Berry 7847 (duplicate)* (MICH), *KC212428, –; *Euphorbia characias* subsp. *wulfenii* (Hoppe ex W. Koch) Radcl.-Sm. 3, cult., *P. Berry 7847* (MICH), JN250126, JN249116; *Euphorbia cheiradenia* Boiss. & Hohen., Iran, *Y. Salmaki & S. Zarre 39920* (TUH), –; *KC212471; *Euphorbia clementei* Boiss. 1, Morocco, *J. Molero BCN49327* (BCN), HQ900596, –; *Euphorbia clementei* Boiss. 2, Morocco, *R. Riina 1789* (MICH), *KC212206, –; *Euphorbia commutata* Engelm. ex A. Gray, Canada, *M. Oldham 14724*

Appendix S1. Continued.

(MICH), *KC212207, *KC212472; *Euphorbia condylocarpa* M. Bieb. 1, Russia, *D. Geltman* 37 (LE), GU979426, –; *Euphorbia condylocarpa* M. Bieb. 2, Iran, *Y. Salmaki & al.* 39955 (TUH), *KC212208, *KC212473; *Euphorbia condylocarpa* M. Bieb. 3, Georgia, *A. Gröger* 1624 (M), –, *KC212474; *Euphorbia coniosperma* Boiss. & Buhse 1, Armenia, *L. Vakhitina s.n.* (LE), *KC212209, –; *Euphorbia coniosperma* Boiss. & Buhse 2, Armenia, *E. Vitek & al.* 05–1171 (W), HQ900578, –; *Euphorbia coniosperma* Boiss. & Buhse 3, Armenia, *L. Vakhitina s.n. (duplicate)* (LE), *KC212210, –; *Euphorbia connata* Boiss. 1, Iran, *Y. Salmaki & al.* 39937 (TUH), *KC212211, *KC212475; *Euphorbia connata* Boiss. 2, Iran, *S. Zarre & al.* 39940 (TUH), JF732982, –; *Euphorbia consanguinea* Schrenk, Turkmenistan, *V. Botschantsev* 410 (LE), *KC212212, –; *Euphorbia corallioides* L., Italy, *R. Vilatersana & al.* 1161 (BC), HQ900597, *KC212476; *Euphorbia craspedia* Boiss. 1, Iran, *P. Wendelbo & M. Assadi* 16698 (LE), GU984326, –; *Euphorbia craspedia* Boiss. 2, Iran, *Y. Salmaki & S. Zarre* 14327 (TUH), *KC212213, *KC212477; *Euphorbia cyparissias* L. 1, Spain, *J. Molero & L. Sáez* 8/2007 (BCN), *KC212214, *KC212478; *Euphorbia cyparissias* L. 2, Spain, *L. Barres* 37 (BC), HQ900598, –; *Euphorbia cyparissias* L. 3, U.S.A., *B. van Ee* 721 (US), JN250133, JN249123; *Euphorbia cyparissias* L. 4, Austria, *G. Kleesadl* 4237 (WU), JN010037, *KC212479; *Euphorbia cyparissias* L. 5, France, *P. Berry* 7916 (MICH), *KC212215, *KC212480; *Euphorbia cyparissias* × *esula*, Canada, *M. Kim & K. Park* 2001–0046, EU659760, –; *Euphorbia cyparissioides* Pax, Tanzania, *J. Morawetz* 463 (MICH), *KC212216, *KC212481; *Euphorbia cyrtophylla* (Prokh.) Prokh., Tajikistan, *I. Shibkova* 2944 (LE), *KC212217, –; *Euphorbia deflexa* Sibth. & Sm. 1, Greece, *W. Frajman & P. Schönswetter* 11676 (IB), JN010038, –; *Euphorbia deflexa* Sibth. & Sm. 2, Greece, *W. Lippert* 18719 (LE), GU984334, –; *Euphorbia deltobractea* (Prokh.) Prokh., Iran, *M. Eskandari* 53773 (IRAN), *KC212218, *KC212482; *Euphorbia dendroides* L. 1, Croatia, *B. Frajman & P. Schönswetter* 11544 (IB), JN010039, –; *Euphorbia dendroides* L. 2, Greece, *R. Riina* 1555 (MICH), JN250135, JN249125; *Euphorbia dendroides* L. 3, Italy, *L. Barres & E. Mameli* 36 (BC), HQ900599, –; *Euphorbia dendroides* L. 4, Greece, *R. Riina* 1555 (duplicate) (MICH), *KC212219, –; *Euphorbia dendroides* L. 5, Greece, *A. Strid* 25582 (RSA), AF537539, –; *Euphorbia densa* Schrenk 1, Iran, *M. Eskandari s.n.* (MICH), *KC212220, *KC212483; *Euphorbia densa* Schrenk 2, Pakistan, *K. Reching* 28952 (W), HQ900600, –; *Euphorbia densa* Schrenk 3, Iran, *F. Termeh s.n.* (MICH), *KC212221, *KC212484; *Euphorbia densa* Schrenk 4, Iran, *Y. Salmaki* 38124 (TUH), *KC212222, *KC212485; *Euphorbia densa* Schrenk 5, Iran, *Y. Salmaki & S. Zarre* 39939 (TUH), *KC212223, *KC212486; *Euphorbia densiusculiformis* Popov, Uzbekistan, *R. Kamelin* 223 (LE), *KC212224, *KC212487; *Euphorbia denticulata* Lam. 1, Iran, *K. Reching* 47845 (W), HQ900601, –; *Euphorbia denticulata* Lam. 2, Iran, *Y. Salmaki & al.* 41008 (TUH), –, *KC212488; *Euphorbia depauperata* Hochst. ex A. Rich. 1, Tanzania, *J. Morawetz* 466 (MICH), *KC212225, *KC212489; *Euphorbia depauperata* Hochst. ex A. Rich. 2, Malawi, *K. Kaunda & E. Tawakali* 906 (NY), AF537556, –; *Euphorbia depauperata* Hochst. ex A. Rich. 3, Kenya, *A. Sanchez* 98 (MA), *KC212226, *KC212490; *Euphorbia depauperata* Hochst. ex A. Rich. 4, Kenya, *P. Kirika cfm12* (MICH), *KC212227, *KC212491; *Euphorbia dimorphocaulon* P.H. Davis 1, Turkey, *R. Riina* 1673 (duplicate) (MA), JN250137, JN249127; *Euphorbia dimorphocaulon* P.H. Davis 2, Turkey, *R. Riina* 1673 (MA), *KC212228, *KC212492; *Euphorbia discolor* Ledeb. 1, Russia, *D. McNeal* 710 (RSA), AF537547, –; *Euphorbia discolor* Ledeb. 2, Russia, *P. Schönswetter & A. Tribsch* TG-12 (WU), JN010040, *KC212493; *Euphorbia dracunculoides* subsp. *inconspicua* (Ball) Maire, Algeria, *J. Aldasoro* 9811 (BCN), *KC212229, *KC212494; *Euphorbia dregeana* E. Mey. ex Boiss., South Africa, *R. Becker* 897 (PRE), JN250140, JN249130; *Euphorbia dubovikii* Oudejans, Russia, *D. Geltman* 23 (LE), GU984308, –; *Euphorbia dulcis* L. 1, Slovenia, *B. Frajman & P. Schönswetter* 11111 (IB), JN010041, –; *Euphorbia dulcis* L. 2, Spain, *J. Molero & L. Sáez* BCN54322 (BCN), *KC212230, *KC212495; *Euphorbia dulcis* L. 3, Czech Republic, *P. Efmov & M. Heida* 19 (LE), GU953743, –; *Euphorbia dulcis* L. 4, Austria, *F. Schuhwerk* 06–236 (M), *KC212231, *KC212496; *Euphorbia dumalis* S. Carter 1, Ethiopia, *J. Aldasoro* 10386 (BCN), *KC212232, *KC212497; *Euphorbia dumalis* S. Carter 2, Ethiopia, *J. Aldasoro* 10323 (BCN), *KC212233, *KC212498; *Euphorbia dumalis* S. Carter 3, Ethiopia, *J. Aldasoro* 10385 (BCF), *KC212234, *KC212499; *Euphorbia ebracteolata* Hayata, South Korea, *Park* 1010, EU659768, –; *Euphorbia emirnenis* Baker, Madagascar, *T. Haevermans* 95 (P), AJ508964, –; *Euphorbia epicyparissias* (E. Mey. ex Klotzsch & Garcke) Boiss., South Africa, *A. Nicholas* 2371 (PRE), *KC212235, *KC212500; *Euphorbia epithymoides* L. 1, Bulgaria, *B. Frajman & P. Schönswetter* 11306 (IB), JN010082, –; *Euphorbia epithymoides* L. 2, Czech Republic, *P. Efmov & M. Heida* 13 (LE), GU953742, –; *Euphorbia ericoides* Lam. 1, South Africa, *D. Killick* 4489 (MO), *KC212236, –; *Euphorbia ericoides* Lam. 2, South Africa, *D. Killick* 4489 (duplicate) (MO), JN250145, JN249134; *Euphorbia ericoides* Lam. 3, South Africa, *P. Bruyns* 11316 (BOL), *KC212237, –; *Euphorbia eriophora* Boiss. 1, Iran, *M. Iranshahr* 46720 (IRAN), *KC212238, –; *Euphorbia eriophora* Boiss. 2, Armenia, *A. Takhtajan & E. Gabrielyan s.n.* (LE), *KC212239, –; *Euphorbia erubescens* Boiss. 1, Iran, *Y. Salmaki & al.* 39954 (TUH), *KC212240, *KC212501; *Euphorbia erubescens* Boiss. 2, Iran, *S. Zarre & al.* 39986 (TUH), JF732985, –; *Euphorbia erythradenia* Boiss., Iran, *A. Pahlevani & Bahramshad* 53336 (IRAN), *KC212241, –; *Euphorbia erythrina* Link, South Africa, *J. Meyer* 1441 (PRE), *KC212242, –; *Euphorbia espinosa* Pax, cult., *V. Steinmann* 1494 (RSA), AF537416, AF538190; *Euphorbia esula* L. 1, Austria, *B. Frajman & P. Schönswetter* 11102 (IB), JN010043, *KC212502; *Euphorbia esula* L. 2, Slovenia, *B. Frajman* 12414 (IB), JN010042, –; *Euphorbia esula* L. 3, Russia, *D. Geltman* 170 (LE), *KC212245, –; *Euphorbia esula* L. 4, Poland, *D. Geltman* 214 (LE), GU984311, –; *Euphorbia esula* L. 5, Poland, *D. Geltman* 216 (LE), GU984312, –; *Euphorbia esula* L. 6, Germany, *Larsen & al.* 130 (LE), GU984313, –; *Euphorbia esula* L. 7, South Korea, *Chung* 110, EU659749, –; *Euphorbia esula* L. 8, Germany, *F. Schuhwerk* 795 (M), *KC212246, *KC212505; *Euphorbia esula* L. 9, U.S.A., *R. Halse* 7366 (MICH), *KC212243, *KC212503; *Euphorbia esula* L. 10, U.S.A., *V. Steinmann* 1427 (RSA), AF537546, –; *Euphorbia esula* L. 11, U.S.A., *K. Sysma* 7328 (WIS), JN250255, –; *Euphorbia esula* L. 12, U.S.A., *P. Berry* 7974 (MICH), *KC212244, *KC212504; *Euphorbia eugeniae* Prokh., Georgia, *D. Geltman* 57a (LE), GU979428, –; *Euphorbia exigua* L. 1, Spain, *B. Frajman & P. Schönswetter* 11537 (IB), JN010044, –; *Euphorbia exigua* L. 2, Spain, *A. Carrillo & al.* 1906 (BCN), GU984325, –; *Euphorbia exigua* L. 3, Portugal, *R. Riina* 1550 (duplicate) (MICH), JN250146, JN249136; *Euphorbia exigua* L. 4, Spain, *L. Barres & al.* 44 (BC), HQ900606, –; *Euphorbia exigua* L. 5, Portugal, *R. Riina* 1550 (MICH), *KC212247, *KC212506; *Euphorbia falcata* L. 1, Bulgaria, *B. Frajman & P. Schönswetter* 11347 (IB), JN010046, *KC212507; *Euphorbia falcata* L. 2, Spain, *B. Frajman* 12530 (IB), JN010045, –; *Euphorbia falcata* L. 3, Russia, *Y. Menitsky & T. Popova s.n.* (LE), GU984328, –; *Euphorbia falcata* L. 4, Spain, *L. Barres & al.* 42 (BC), HQ900607, –; *Euphorbia falcata* L. 5, Spain, *R. Riina* 1860 (MA), –, *KC212508; *Euphorbia fauriei* H. Lév. & Vaniot 1, South Korea, *Kim & Tho* 2001–0011, EU659765, –; *Euphorbia fauriei* H. Lév. & Vaniot 2, South Korea, *Tho & J.H. Kim* 2001–0002, EU659767, –; *Euphorbia ferganensis* B. Fedtsch., Kyrgyzstan, *R. Kamelin* 1311 (LE), *KC212248, –; *Euphorbia fistulosa* M.S. Khan, Turkey, *P. Davis* 28230 (LE), *KC212249, *KC212509; *Euphorbia flavicoma* DC. 1, Spain, *J. Molero & al.* BCN53617 (duplicate) (MICH), JN250152, JN249142; *Euphorbia flavicoma* DC. 2, Spain, *J. Molero* BCN53024 (BCN), HQ900608, –; *Euphorbia flavicoma* DC. 3, Spain, *J. Molero & al.* BCN53617 (MICH), *KC212250, –; *Euphorbia flavicoma* DC. 4, Spain, *J. Molero & al.* BCN53614 (BCN), *KC212251, *KC212510; *Euphorbia flavicoma* DC. 5, Spain, *J. Molero & al.* BCN53620 (MICH), *KC212252, *KC212511; *Euphorbia flavicoma* DC. 6, Spain, *R. Riina* 1870 (MA), *KC212253, *KC212512; *Euphorbia flavicoma* DC. 7, Spain, *R. Riina* 1759 (BCF), *KC212254, *KC212513; *Euphorbia fontqueriana* Greuter 1, Spain, *B. Frajman* 12546 (IB), JN010047, –; *Euphorbia fontqueriana* Greuter 2, Spain, *L. Sáez s.n.* (BCB), HQ900609, –; *Euphorbia fragifera* Jan 1, Slovenia, *Bacic* 11126 (IB), JN010048, *KC212514; *Euphorbia fragifera* Jan 2, cult., *R. Riina* 1841 (MA), *KC212255, *KC212515; *Euphorbia franchetii* B. Fedtsch., Iran, *Y. Salmaki & al.* 38179 (TUH), *KC212256, *KC212516; *Euphorbia furcatifolia* M.G. Gilbert, Ethiopia, *J. Aldasoro* 10266 (BCN), *KC212257, *KC212517; *Euphorbia furcillata* Kunth 1, Mexico, *M. Salinas & al.* 800 (MEXU), –, *KC212518; *Euphorbia furcillata* Kunth 2, Mexico, *V. Steinmann* 5844 (IEB), –, *KC212464; *Euphorbia gaillardotii* Boiss. & Blanche, Turkey, *H. Haussknecht s.n.* (LE), *KC212258, *KC212519; *Euphorbia gedrosiaca* Rech.f., Aellen & Esfand, Iran, *A. Pahlevani & Bahramshad* 53344 (IRAN), *KC212259, –; *Euphorbia genitoides* P.J. Bergius 1, South Africa, *P. Bruyns* 9314 (BOL), AM040770, –; *Euphorbia genitoides* P.J. Bergius 2, South Africa, *J. Morawetz* 301 (MICH), *KC212260, *KC212520; *Euphorbia glabriflora* Vis. 1, Bosnia, *B. Frajman & P. Schönswetter* 12391 (IB), JN010049, *KC212521; *Euphorbia glabriflora* Vis. 2, Serbia, *D. Geltman* 184 (LE), GU979427, –; *Euphorbia glareosa* Pall. ex M. Bieb., Austria, *B. Frajman & P. Schönswetter* 11100 (IB), JN010050, *KC212522; *Euphorbia glauca* G. Forst. 1, New Zealand, *P. Garnock-Jones* 2844, *KC212261, *KC212523; *Euphorbia glauca* G. Forst. 2, New Zealand, *J. Wotherspoon s.n.*, *KC212262, *KC212524; *Euphorbia gossypina* Pax 1, Kenya, *J. Morawetz* 399 (MICH), *KC212263, *KC212525; *Euphorbia gossypina* Pax 2, Tanzania, *J. Morawetz* 439 (MICH), *KC212264, *KC212526; *Euphorbia gossypina* Pax 3, Tanzania, *J. Morawetz* 442 (MICH), *KC212265, *KC212527; *Euphorbia gossypina* Pax 4, Tanzania, *M. Richards* 23502 (K), HQ900610, –; *Euphorbia gregerseii* K. Malý ex Beck, Bosnia, *B. Frajman & P. Schönswetter* 12554 (IB), JN010051,

Appendix S1. Continued.

*KC212528; *Euphorbia grossheimii* (Prokh.) Prokh. 1, Iran, Y. Salmaki & S. Zarre 41012 (TUH), *KC212266, *KC212529; *Euphorbia grossheimii* (Prokh.) Prokh. 2, Iran, Y. Salmaki & S. Zarre 41012 (duplicate) (TUH), JF732981, –; *Euphorbia guyoniana* Boiss. & Reut. 1, Morocco, R. Riina 1797 (MICH), JN250164, JN249155; *Euphorbia guyoniana* Boiss. & Reut. 2, Morocco, R. Riina 1797 (duplicate) (MICH), *KC212267, –; *Euphorbia gypsicola* Rech.f. & Aellen 1, Iran, Y. Salmaki & S. Zarre 41011 (TUH), *KC212268, *KC212530; *Euphorbia gypsicola* Rech.f. & Aellen 2, Iran, S. Zarre & al. 38012 (TUH), JF732976, –; *Euphorbia haussknechtii* Boiss., Syria, H. Haussknecht s.n. (LE), *KC212269, *KC212531; *Euphorbia hebecarpa* Boiss. 1, Iran, Y. Salmaki & S. Zarre 31841 (TUH), *KC212270, *KC212532; *Euphorbia hebecarpa* Boiss. 2, Iran, S. Zarre & al. 39987 (TUH), JF732989, –; *Euphorbia helioscopia* L. 1, South Africa, P. Bruyns 9315 (BOL), AM040775, –; *Euphorbia helioscopia* L. 2, Ukraine, V. Byalt & al. 356 (LE), GU979437, –; *Euphorbia helioscopia* L. 3, Spain, R. Riina 1607 (MICH), JN250168, JN249158; *Euphorbia helioscopia* L. 4, Spain, L. Barres & al. 6 (BC), HQ900612, –; *Euphorbia helioscopia* L. 5, Spain, R. Riina 1607 (duplicate) (MICH), JQ750880, JQ750809; *Euphorbia helioscopia* L. 6, Austria, W. Till 4529 (WU), JN010052, *KC212533; *Euphorbia helioscopia* L. 7, China, W. Jin 010 (MICH), *KC212271, –; *Euphorbia helioscopia* L. 8, Spain, R. Riina 1858 (MA), –; *KC212534; *Euphorbia hercegovina* Beck, Bosnia, B. Frajman & P. Schönswetter 12135 (IB), JN010053, *KC212535; *Euphorbia herniariifolia* Willd. 1, Greece, B. Frajman & P. Schönswetter 11668 (IB), JN010054, *KC212536; *Euphorbia herniariifolia* Willd. 2, Greece, R. Riina 1571 (duplicate 2) (MICH), HQ900613, –; *Euphorbia herniariifolia* Willd. 3, Greece, R. Riina 1571 (duplicate) (MICH), JN250169, JN249159; *Euphorbia herniariifolia* Willd. 4, Greece, R. Riina 1571 (MICH), *KC212272, –; *Euphorbia heteradena* Jaub. & Spach 1, Azerbaijan, E. Gogina s.n. (LE), GU984324, –; *Euphorbia heteradena* Jaub. & Spach 2, Iran, S. Zarre & Y. Salmaki 39893 (TUH), *KC212273, *KC212537; *Euphorbia himalayensis* (Klotzsch) Boiss. 1, China, W. Jin 017 (MICH), *KC212392, –; *Euphorbia himalayensis* (Klotzsch) Boiss. 2, China, W. Jin 020 (MICH), *KC212393, *KC212648; *Euphorbia hirsuta* L. 1, Spain, P. Schönswetter 12026 (IB), JN010055, –; *Euphorbia hirsuta* L. 2, Spain, R. Riina 1769 (duplicate) (MICH), JN250171, JN249161; *Euphorbia hirsuta* L. 3, Spain, J. Molero & A. Rovira 21/2007 (BCN), HQ900614, –; *Euphorbia hirsuta* L. 4, Spain, R. Riina 1769 (MICH), KC019730, KC019873; *Euphorbia humilis* Ledeb., Kyrgyzstan, G. Lazkov s.n. (LE), GU984329, –; *Euphorbia hyberna* L. 1, Spain/France, B. Frajman & P. Schönswetter 11436 (IB), JN010056, *KC212538; *Euphorbia hyberna* L. 2, France, R. Riina 1865 (MA), *KC212274, *KC212539; *Euphorbia iberica* Boiss. 1, Georgia, G. Schneeweß & A. Tribsch 6886 (WU), JN010057, –; *Euphorbia iberica* Boiss. 2, Russia, D. Geltman 1 (LE), GU984310, –; *Euphorbia iberica* Boiss. 3, Armenia, E. Vitek 05–0912 (W), HQ900615, –; *Euphorbia iberica* Boiss. 4, Iran, A. Pahlevani & Asef 54569 (IRAN), *KC212275, *KC212540; *Euphorbia iberica* Boiss. 5, Georgia, A. Gröger 1688 (M), *KC212276, *KC212541; *Euphorbia illirica* Lam. 1, Spain, L. Barres 39 (BC), –; *KC212542; *Euphorbia illirica* Lam. 2, Slovenia, B. Frajman 12191 (IB), JN010116, –; *Euphorbia indeniensis* Less. ex Kar. & Kir. 1, Iran, Y. Salmaki & al. 38210 (TUH), –; *KC212543; *Euphorbia indeniensis* Less. ex Kar. & Kir. 2, Iran, A. Pahlevani 53762 (IRAN), *KC212277, *KC212544; *Euphorbia isatidifolia* Lam. 1, Spain, L. Barres & al. 30 (BC), HQ900617, –; *Euphorbia isatidifolia* Lam. 2, Spain, L. Barres & al. 30 (duplicate) (BC), *KC212278, *KC212545; *Euphorbia isatidifolia* Lam. 3, Spain, R. Riina 1867 (MA), *KC212279, *KC212546; *Euphorbia isaurica* M.S. Khan, Turkey, P. Davis 16189 (E), –; *KC212547; *Euphorbia jaxartica* (Prokh.) Krylov 1, Kyrgyzstan, G. Lazkov s.n. (LE), *KC212280, –; *Euphorbia jaxartica* (Prokh.) Krylov 2, Kazakhstan, D. Geltman 205 (LE), *KC212281, –; *Euphorbia jolkini* Boiss. 1, South Korea, Kim & Tho 2001–0011, EU659765, –; *Euphorbia jolkini* Boiss. 2, China, N. Yang 0935 (KUN), *KC212282, *KC212548; *Euphorbia jolkini* Boiss. 3, China, W. Jin 018 (MICH), *KC212283, –; *Euphorbia jolkini* Boiss. 4, China, W. Jin 019 (MICH), *KC212284, –; *Euphorbia kanaorica* Boiss., Tajikistan, R. Kamelin s.n. (LE), *KC212285, –; *Euphorbia kernerii* Huter ex A. Kern., Italy, B. Frajman & P. Schönswetter 12076 (IB), JN010058, *KC212549; *Euphorbia komaroviana* Prokh. 1, Russia, P. Efimov & T. Moskalyuk 4 (LE), GU979439, –; *Euphorbia komaroviana* Prokh. 2, China, B.U. Oh s.n., EU659770, –; *Euphorbia kopetdagi* (Prokh.) Prokh. 1, Turkmenistan, D. Kurbanov 761 (duplicate) (MO), *KC212286, –; *Euphorbia kopetdagi* (Prokh.) Prokh. 2, Turkmenistan, D. Kurbanov 761 (MO), JN250177, JN249167; *Euphorbia kopetdagi* (Prokh.) Prokh. 3, Iran, Y. Salmaki & al. 38185 (TUH), *KC212287, *KC212550; *Euphorbia kozlovii* Prokh., Mongolia, V. Grubov & al. 43 (LE), *KC212288, –; *Euphorbia kraussiana* Bernh. ex Krauss 1, South Africa, J. Burrows s.n. (PRE), *KC212289, –; *Euphorbia kraussiana* Bernh. ex Krauss 2, South Africa, P. Bruyns 11289 (BOL), *KC212290, –; *Euphorbia kraussiana* Bernh. ex Krauss 3, South Africa, M. Stalmans 372 (MO), AF537548, –; *Euphorbia lagascae* Spreng. 1, Spain, J. Molero & al. 18/2008 (duplicate) (BCN), *KC212291, *KC212551; *Euphorbia lagascae* Spreng. 2, Spain, J. Molero & al. 18/2008 (BCN), HQ900618, –; *Euphorbia lagascae* Spreng. 3, Spain, J. Molero 6/2007 (BCN), *KC212292, *KC212552; *Euphorbia lamarckii* Sweet 1, Spain, B. Dorsey 23 (MICH), *KC212293, *KC212553; *Euphorbia lamarckii* Sweet 2, Spain, J. Molero 6/2007 (BCN), HQ900619, –; *Euphorbia lamprocarpa* (Prokh.) Prokh. 1, Kyrgyzstan, G. Lazkov s.n. (LE), GU953745, –; *Euphorbia lamprocarpa* (Prokh.) Prokh. 2, Kazakhstan, D. Geltman 199 (LE), *KC212294, *KC212554; *Euphorbia larica* Boiss., Oman, J. Morawetz 350 (MICH), HQ900620, *KC212430; *Euphorbia lateriflora* Schumach. 1, Ghana, C. Jongkind & al. 1720 (MO), JN250179, JN249169; *Euphorbia lateriflora* Schumach. 2, Ghana, J. Hall 46017 (K), HQ900621, –; *Euphorbia lathyris* L. 1, U.S.A., K. Wurdack 5558 (US), JN250180, JN249170; *Euphorbia lathyris* L. 2, Spain, L. Barres & al. 36 (BC), HQ900622, –; *Euphorbia lathyris* L. 3, U.S.A., V. Steinmann 1426 (RSA), AF537550, –; *Euphorbia lathyris* L. 4, Austria, J. Walter 4.7.1995 (WU), JN010059, *KC212555; *Euphorbia lathyris* L. 5, Switzerland, R. Riina 1840 (MA), –; *KC212556; *Euphorbia latifolia* Ledeb., Russia, D. Geltman 42 (LE), GU984316, –; *Euphorbia leptocaula* Boiss., Russia, D. Matveev s.n. (LE), GU984320, –; *Euphorbia leucocephala* Lotsev, cult., P. Berry 7841 (MICH), JN250182, JN249172; *Euphorbia lipskyi* (Prokh.) Prokh., Tajikistan, I. Shibkova & al. 1392 (LE), *KC212295, –; *Euphorbia lomelii* V.W. Steinm., Mexico, B. van Ee 703 (MICH), JN250184, JN249174; *Euphorbia lucida* Waldst. & Kit. 1, Austria, L. Schrott-Ehrendorfer 11183 (IB), JN010061, –; *Euphorbia lucida* Waldst. & Kit. 2, Slovenia, B. Frajman 12023 (IB), JN010060, *KC212557; *Euphorbia lucida* Waldst. & Kit. 3, Czech Republic, P. Efimov & M. Heida 17 (LE), GU984307, –; *Euphorbia lucorum* Rupr., China, B.U. Oh s.n., EU659771, –; *Euphorbia lunulata* Bunge, South Korea, Oh & Kim 2001–0002, EU659752, –; *Euphorbia lurida* Engelm. 1, U.S.A., G. Rink 6201 (NY), JN250186, JN249176; *Euphorbia lurida* Engelm. 2, U.S.A., G. Rink 6201 (duplicate) (NY), *KC212296, –; *Euphorbia macrocarpa* Boiss. & Buhse 1, Iran, K. Maroufi 8208, *KC212297, *KC212558; *Euphorbia macrocarpa* Boiss. & Buhse 2, Iran, Y. Salmaki & al. 39561 (TUH), *KC212298, *KC212559; *Euphorbia macroceras* Fisch. & C.A. Mey. 1, Georgia, A. Tribsch & al. 10916 (WU), JN010062, *KC212560; *Euphorbia macroceras* Fisch. & C.A. Mey. 2, Russia, D. Geltman 6 (LE), GU984305, –; *Euphorbia macroceras* Fisch. & C.A. Mey. 3, Iran, Y. Salmaki & al. 39750 (TUH), –; *KC212561; *Euphorbia macroclada* Boiss., Iran, Y. Salmaki & S. Zarre 39896 (TUH), –; *KC212562; *Euphorbia malleata* Boiss., Iran, Y. Salmaki & S. Zarre 39894 (TUH), –; *KC212563; *Euphorbia maraesii* subsp. *balearica* (Willk.) Malag., Spain, B. Frajman 12545 (IB), JN010063, –; *Euphorbia marschalliana* Boiss., Iran, Y. Salmaki 39929 (TUH), JF732971, –; *Euphorbia masirahensis* Ghaz., Oman, J. Morawetz 348 (MICH), HQ900623, *KC212431; *Euphorbia matritensis* Boiss. 1, Spain, J. Molero & al. 11/2008 (BCN), *KC212299, *KC212564; *Euphorbia matritensis* 2, Spain, J. Molero & al. 11/2008 (duplicate) (BCN), HQ900624, –; *Euphorbia mauritanica* L. 1, South Africa, J. Morawetz 277 (MICH), *KC212300, –; *Euphorbia mauritanica* L. 2, South Africa, J. Morawetz 277 (duplicate) (MICH), JN250189, JN249179; *Euphorbia mauritanica* L. 3, South Africa, R. Becker 857 (duplicate) (MICH), HQ900625, –; *Euphorbia mauritanica* L. 4, South Africa, R. Becker 1161 (MICH), *KC212301, *KC212565; *Euphorbia mauritanica* L. 5, South Africa, R. Becker 857 (MICH), *KC212302, *KC212566; *Euphorbia mauritanica* L. 6, South Africa, P. Bruyns 11390 (BOL), *KC212303, –; *Euphorbia mauritanica* L. 7, cult., V. Steinmann 1432 (RSA), AF537531, –; *Euphorbia mazandarana* Pahlevani 1, Iran, A. Pahlevani & M. Eskandari 55150 (IRAN), *KC212304, *KC212567; *Euphorbia mazandarana* Pahlevani 2, Iran, Y. Salmaki 39758 (TUH), –; *KC212568; *Euphorbia medicaginea* Boiss. 1, Spain, B. Frajman 12541 (IB), JN010064, –; *Euphorbia medicaginea* Boiss. 2, Spain, J. Molero & A. Rovira 22/2007 (duplicate) (BCN), HQ900626, –; *Euphorbia medicaginea* Boiss. 3, Spain, J. Molero & A. Rovira 22/2007 (BCN), *KC212305, –; *Euphorbia medicaginea* Boiss. 4, Morocco, D. Podlech 41883 (RSA), AF537535, –; *Euphorbia megalatlantica* Ball 1, Morocco, R. Romo & R. Vilatersana 12510 (13879) (IB), JN010065, –; *Euphorbia megalatlantica* Ball 2, Morocco, R. Romo & R. Vilatersana 12511 (13949) (IB), JN010066, *KC212569; *Euphorbia megalatlantica* Ball 3, Morocco, J. Molero 07/2007 & al. (BCN), HQ900627, –; *Euphorbia megalatlantica* Ball 4, Morocco, D. Podlech 41177 (RSA), AF537536, AF538226; *Euphorbia mellifera* Aiton 1, cult., S. Lagaard 9905 (DAV), AF537558, –; *Euphorbia mellifera* Aiton 2, Spain, J. Molero 12/2007 (duplicate) (BCN), HQ900628, –; *Euphorbia mellifera* Aiton 3, Spain, J. Molero 12/2007 (BCN), *KC212306, *KC212570; *Euphorbia mellifera* Aiton 4, Spain, B. Dorsey 44 (MICH), *KC212307, –; *Euphorbia micractina* Boiss. 1, China, W. Jin 008

Appendix S1. Continued.

(MICH), *KC212308, *KC212571; *Euphorbia micractina* Boiss. 2, China, *W. Jin 008b* (MICH), *KC212309, –; *Euphorbia microcarpa* (Prokh.) Krylov 1, Russia, *D. Geltman 144* (LE), *KC212310, –; *Euphorbia microcarpa* (Prokh.) Krylov 2, Russia, *D. Geltman 153* (LE), *KC212311, –; *Euphorbia microsciadia* Boiss. 1, Iran, *Y. Salmaki & al. 39935* (TUH), *KC212312, *KC212572; *Euphorbia microsciadia* Boiss. 2, Iran, *Y. Salmaki & al. 39739* (TUH), JF732975, –; *Euphorbia microsphaera* Boiss., Iran, *S. Safavi & Dezfulian 17840* (IRAN), *KC212313, –; *Euphorbia milii* Des Moul., cult., *P. Berry 7826* (MICH), JN250191, JN249180; *Euphorbia minuta* Loscos & Pardo 1, Spain, *L. Barres & al. 33* (BC), HQ900629, –; *Euphorbia minuta* Loscos & Pardo 2, Spain, *R. Riina 1872* (MA), *KC212314, *KC212573; *Euphorbia montenegrina* (Bald.) K. Malý 1, Montenegro, *M. Niketic & al. 11898* (IB), JN010068, *KC212574; *Euphorbia montenegrina* (Bald.) K. Malý 2, Bosnia, *B. Frajman & P. Schönschwetter 12564* (IB), JN010067, –; *Euphorbia muraltoides* N.E. Br., South Africa, *P. Bruyns 11069* (BOL), *KC212315, *KC212575; *Euphorbia myrsinites* L. 1, Bosnia, *B. Frajman 12040* (IB), JN010069, *KC212576; *Euphorbia myrsinites* L. 2, Italy, *R. Vilatersana & al. 1132* (BC), HQ900630, –; *Euphorbia myrsinites* L. 3, U.S.A. cult., *K. Wurdack 5556* (US), JN250193, –; *Euphorbia myrsinites* L. 4, cult., *V. Steinmann 1430* (RSA), AF537551, –; *Euphorbia nakaii* Hurus., South Korea, *Chung 120*, EU659751, –; *Euphorbia natalensis* Bernh. ex Krauss, South Africa, *G. Germishuizen 866* (PRE), *KC212316, *KC212577; *Euphorbia neilmulleri* M.C. Johnst., Mexico, *J. Henrickson 22475b* (IEB), –; *KC212578; *Euphorbia nereidum* Jahand. & Maire 1, Morocco, *R. Riina 1778* (duplicate) (MICH), JN250198, JN249186; *Euphorbia nereidum* Jahand. & Maire 2, Morocco, *J. Montserrat s.n.* (BC), HQ900631, –; *Euphorbia nereidum* Jahand. & Maire 3, Morocco, *R. Riina 1778* (MICH), *KC212317, *KC212579; *Euphorbia nevadensis* subsp. *bolosii* Molero & Rovira 1, Spain, *R. Riina 1871* (MA), *KC212318, *KC212580; *Euphorbia nevadensis* subsp. *bolosii* Molero & Rovira 2, Spain, *A. Hilpold & M. Pramsohler s.n.* (BC), HQ900632, –; *Euphorbia nevadensis* subsp. *bolosii* Molero & Rovira 3, Spain, *J. Molero BCN53349* (MICH), *KC212319, *KC212581; *Euphorbia nevadensis* subsp. *nevadensis* Boiss. & Reut., Spain, *J. Molero & A. Rovira 7/2008* (BCN), *KC212320, *KC212582; *Euphorbia nicaeensis* All. 1, Slovenia, *B. Frajman & P. Schönschwetter 12228* (IB), JN010070, –; *Euphorbia nicaeensis* All. 2, Spain, *R. Riina 1767* (duplicate) (MICH), JN250200, JN249188; *Euphorbia nicaeensis* All. 3, Spain, *L. Barres & al. 3* (BC), HQ900633, –; *Euphorbia nicaeensis* All. 4, Spain, *R. Riina 1767* (MICH), *KC212321, *KC212583; *Euphorbia niciana* Borbás ex Novák, Serbia, *B. Frajman & P. Schönschwetter 11242* (IB), JN010071, *KC212584; *Euphorbia nubica* N.E. Br. 1, Kenya, *J. Morawetz 390* (MICH), *KC212322, *KC212585; *Euphorbia nubica* N.E. Br. 2, Kenya, *J. Morawetz 391* (MICH), *KC212323, *KC212586; *Euphorbia nubica* N.E. Br. 3, Ethiopia, *I. Friis & al. 8288* (K), HQ900634, –; *Euphorbia nubica* N.E. Br. 4, Eritrea, *P. Bruyns 10157* (BOL), *KC212324, –; *Euphorbia obesa* Hook. f., cult., *K. Wurdack D539* (US), JN250202, JN249189; *Euphorbia oblongata* Griseb. 1, U.S.A. (introduced), *R. Riina 1839* (MICH), *KC212325, *KC212587; *Euphorbia oblongata* Griseb. 2, U.S.A., *R. Halse 4334* (RSA), AF537555, –; *Euphorbia oblongifolia* (K. Koch) K. Koch 1, Azerbaijan, *G. Schneeweiß & A. Tribsch 6744* (WU), JN010072, *KC212588; *Euphorbia oblongifolia* (K. Koch) K. Koch 2, Russia, *N. Portenier 378* (LE), GU984306, –; *Euphorbia octoradiata* H. Léves. & Vaniot, South Korea, *Chung 200*, EU659750, –; *Euphorbia orientalis* L., cult., *BRUS 1981–12301* (K), EU659764, –; *Euphorbia orthoclada* Baker 1, Madagascar, *B. Dorsey 136* (MICH), KC019519, *KC212589; *Euphorbia orthoclada* Baker 2, cult., *R. Riina 1739* (MA), JN250204, JN249191; *Euphorbia orthoclada* Baker 3, cult., *R. Riina 1739* (duplicate) (MA), HQ900635, –; *Euphorbia orthoclada* Baker 4, Madagascar, *T. Haevermans 98* (P), DQ204876, –; *Euphorbia osyridae* Boiss. 1, Iran, *S. Zarre & al. 39953* (TUH), *KC212326, –; *Euphorbia osyridae* Boiss. 2, Iran, *S. Zarre & al. 39953* (duplicate) (TUH), JF732988, –; *Euphorbia oxyphylla* Boiss. 1, Spain, *J. Molero & al. BCN53036* (duplicate) (MICH), JN250205, JN249192; *Euphorbia oxyphylla* Boiss. 2, Spain, *J. Molero & al. BCN53036* (BCN), *KC212327, *KC212590; *Euphorbia pachyrrhiza* Kar. & Kir., Kazakhstan, *S. Smirnov & al. s.n.* (LE), *KC212328, –; *Euphorbia pachysantha* Baill., cult., *W. Rauh 73350* (HEID), JN250206, JN249193; *Euphorbia palustris* L. 1, Austria, *B. Frajman & P. Schönschwetter 11099* (IB), JN010073, *KC212591; *Euphorbia palustris* L. 2, Russia, *D. Geltman & al. s.n.* (LE), GU979432, –; *Euphorbia palustris* L. 3, Spain, *L. Barres & al. 34* (BC), HQ900637, –; *Euphorbia panicii* Beck, Bosnia, *B. Frajman & P. Schönschwetter 12393* (IB), JN010074, *KC212592; *Euphorbia paniculata* subsp. *monchiquensis* (Franco & P. Silva) Vicens, Molero & C. Blanché 1, Portugal, *J. Molero & al. 14/2008* (duplicate) (BCN), *KC212329, *KC212593; *Euphorbia paniculata* subsp. *monchiquensis* (Franco & P. Silva) Vicens, Molero & C. Blanché 2, Portugal, *J. Molero & al. 14/2008* (BCN), HQ900638, –; *Euphorbia paniculata* subsp. *paniculata* Desf. 1, Spain, *J. Molero & al. 16/2008* (BCN), HQ900639, –; *Euphorbia paniculata* subsp. *paniculata* Desf. 2, Spain, *J. Molero & al. 16/2008* (duplicate) (BCN), *KC212330, *KC212594; *Euphorbia pannonica* Host, Czech Republic, *P. Efimov & M. Heida 18* (LE), GU984331, –; *Euphorbia papilionum* S. Carter, Somalia, *M. Thulin & al. 9415* (K), HQ900640, –; *Euphorbia paralias* L. 1, Croatia, *B. Frajman & P. Schönschwetter 12068* (IB), JN010075, –; *Euphorbia paralias* L. 2, Georgia, *D. Geltman 68* (LE), GU984336, –; *Euphorbia paralias* L. 3, Greece, *R. Riina 1565* (MICH), JN250207, JN249194; *Euphorbia paralias* L. 4, Spain, *J. Molero 6/2008* (BCN), HQ900641, –; *Euphorbia paralias* L. 5, Greece, *R. Riina 1565* (duplicate) (MICH), *KC212331, –; *Euphorbia paralias* L. 6, Spain, *B. Dorsey 60* (MICH), –; *KC212595; *Euphorbia pedroi* Molero & Rovira 1, Portugal, *R. Riina 1585* (duplicate) (MICH), HQ900642, –; *Euphorbia pedroi* Molero & Rovira 2, Portugal, *R. Riina 1585* (MICH), *KC212332, *KC212596; *Euphorbia pekinensis* Rupr. 1, China, *no collector*, AY594263, –; *Euphorbia pekinensis* Rupr. 2, South Korea, *Park & Jung 1003*, EU659766, –; *Euphorbia peplus* var. *minima* DC., Croatia, *B. Frajman & P. Schönschwetter 11531* (IB), JN010076, *KC212597; *Euphorbia peplus* var. *peplus* L. 1, Croatia, *B. Frajman & P. Schönschwetter 11540* (IB), JN010077, –; *Euphorbia peplus* var. *peplus* L. 2, U.S.A., *B. van Ee 717* (MICH), JN250210, JN249197; *Euphorbia peplus* var. *peplus* L. 3, Spain, *L. Barres 16* (BC), HQ900643, –; *Euphorbia peplus* var. *peplus* L. 4, Mexico, *J. Soule 2941* (MO), *KC212333, –; *Euphorbia peplus* var. *peplus* L. 5, Argentina, *B. van Ee 651* (MICH), JN250209, –; *Euphorbia peplus* var. *peplus* L. 6, U.S.A., *V. Steinmann 1433* (RSA), AF537532, –; *Euphorbia peplus* var. *peplus* L. 7, France, *P. Berry 7915* (MICH), *KC212334, *KC212598; *Euphorbia petrophila* C.A. Mey., Russia, *D. Geltman s.n.* (LE), GU984332, –; *Euphorbia phymatosperma* Boiss. & Gaill. 1, Iran, *A. Pahlevani & Bahramshad 47338* (IRAN), *KC212335, –; *Euphorbia phymatosperma* Boiss. & Gaill. 2, Iran, *S. Zarre & al. 41004* (TUH), *KC212336, *KC212599; *Euphorbia phymatosperma* Boiss. & Gaill. 3, Iran, *S. Zarre & al. 41004* (duplicate) (TUH), JF732970, –; *Euphorbia pilosa* L. 1, Russia, *D. Geltman 2* (LE), *KC212337, –; *Euphorbia pilosa* L. 2, Russia, *E. Punina 192* (LE), GU979435, –; *Euphorbia pilosa* L. 3, Russia, *T. Elias & al. 7182* (RSA), AF537557, –; *Euphorbia pilosa* L. 4, Russia, *P. Berry 8001* (MICH), *KC212338, –; *Euphorbia pilosa* L. 5, Russia, *P. Berry 8007* (MICH), *KC212339, –; *Euphorbia pinkavana* M.C. Johnst., Mexico, *J. Henrickson 16008* (IEB), –; *KC212601; *Euphorbia piscatoria* Aiton, cult., *no collector* (BC), HQ900644, –; *Euphorbia pithyusa* L. 1, France, *B. Frajman & P. Schönschwetter 12216* (IB), JN010080, –; *Euphorbia pithyusa* L. 2, Spain, *B. Frajman 12540* (IB), JN010079, –; *Euphorbia pithyusa* L. 3, Spain, *P. Benedi & N. Montes s.n.* (BC), *KC212340, *KC212602; *Euphorbia pithyusa* L. 4, Spain, *P. Benedi & N. Montes s.n.* (duplicate) (BC), HQ900645, –; *Euphorbia platyphyllos* L. 1, Spain, *J. Molero s.n.* (BCN), *KC212341, *KC212603; *Euphorbia platyphyllos* L. 2, Spain, *J. Molero s.n.* (BCN), HQ900646, –; *Euphorbia plebeia* Boiss. 1, Iran, *S. Zarre & al. 39979* (TUH), JF732979, –; *Euphorbia polycaula* Boiss. & Hohen., Iran, *S. Zarre & al. 39933* (TUH), *KC212342, *KC212604; *Euphorbia polychroma* A. Kern., Serbia, *B. Frajman & P. Schönschwetter 11362* (IB), JN010083, *KC212605; *Euphorbia polygalifolia* Boiss. & Reut. 1, Spain, *J. Molero & A. Rovira BCN53606* (MICH), *KC212343, *KC212606; *Euphorbia polygalifolia* Boiss. & Reut. 2, Spain, *J. Molero & A. Rovira BCN53621* (BCN), *KC212344, *KC212607; *Euphorbia polygalifolia* Boiss. & Reut. 3, Spain, *J. Molero & A. Rovira BCN53621* (duplicate) (BCN), HQ900647, –; *Euphorbia portlandica* L. 1, France, *P. Schönschwetter 12580* (IB), JN010084, –; *Euphorbia portlandica* L. 2, France, *X. Aubriot s.n.* (P), GU984335, –; *Euphorbia portlandica* L. 3, Portugal, *R. Riina 1583* (MICH), *KC212345, *KC212609; *Euphorbia portlandica* L. 4, France, *P. Berry 7914* (MICH), *KC212346, *KC212610; *Euphorbia procera* M. Bieb., Russia, *D. Geltman 12* (LE), GU979433, –; *Euphorbia prolifera* Buch.-Ham. ex D. Don, China, *W. Jin 022* (MICH), *KC212347, –; *Euphorbia pterococca* Brot. 1, Spain, *B. Frajman 12514* (IB), JN010085, –; *Euphorbia pterococca* Brot. 2, Spain, *J. Molero & A. Rovira 20/2007* (duplicate) (MICH), *KC212348, *KC212611; *Euphorbia pterococca* Brot. 3, Spain, *J. Molero & A. Rovira 20/2007* (BCN), HQ900648, –; *Euphorbia pterococca* Brot. 4, Greece, *W. Gutermann 31415* (Herb. Gutermann), JN010086, –; *Euphorbia pulcherrima* Willd. ex Klotzsch, cult., *K. Wurdack D084* (US), JN250220, JN249207; *Euphorbia purpurea* (Raf.) Fernald 1, U.S.A., *J. Morawetz 315* (MICH), *KC212349, *KC212612; *Euphorbia purpurea* (Raf.) Fernald 2, U.S.A., *J. Morawetz 316* (MICH), *KC212350, –; *Euphorbia purpurea* (Raf.) Fernald 3, U.S.A., *J. Morawetz 318* (MICH), *KC212351, *KC212613; *Euphorbia purpurea* (Raf.) Fernald 4, U.S.A., *K. Wurdack 5557* (US), JN250222, JN249209; *Euphorbia purpurea* (Raf.) Fernald 5, U.S.A., *C. Loeffler 2008–1* (MICH), *KC212352, –; *Euphorbia purpurea* (Raf.) Fernald 6, U.S.A., *C. Loeffler 2008–2* (MICH), *KC212353, –; *Euphorbia purpurea*

Appendix S1. Continued.

(Raf.) Fernald 7, U.S.A., *C. Loeffler* 2008–3 (MICH), *KC212354, –; *Euphorbia purpurea* (Raf.) Fernald 8, U.S.A., *P. Berry* s.n., *KC212355, –; *Euphorbia pyrenaica* Jord. 1, Spain, *J. Molero & A. Rovira* BCN53619 (BCN), *KC212356, *KC212614; *Euphorbia pyrenaica* Jord. 2, Spain, *J. Molero & A. Rovira* BCN53619 (duplicate) (BCN), HQ900649, –; *Euphorbia pyrenaica* Jord. 3, France/Spain, *G. Schneeweiß & al.* 6465 (WU), JN010035, *KC212615; *Euphorbia rapulum* Kar. & Kir. 1, Kazakhstan, *S. Smirnov* s.n. (LE), *KC212357, *KC212616; *Euphorbia rapulum* Kar. & Kir. 2, Kazakhstan, *S. Smirnov* s.n. (duplicate) (LE), *KC212358, –; *Euphorbia regis-jubae* Webb & Berthel. 1, Spain, *V. Steinmann* 1431 (RSA), AF537541, –; *Euphorbia regis-jubae* Webb & Berthel. 2, Morocco, *R. Riina* 1804 (MICH), JN250226, JN249213; *Euphorbia regis-jubae* Webb & Berthel. 3, Morocco, *E. Batriu & al.* s.n. (BCN), HQ900650, –; *Euphorbia regis-jubae* Webb & Berthel. 4, Spain, *B. Dorsey* 5 (MICH), –; *KC212617; *Euphorbia resinifera* O. Berg, cult., *P. Berry* 7817 (MICH), JN250227, JN249214; *Euphorbia retusa* Forssk. 1, Egypt, *K. Khalik* 2672 (WAG), JN250228, JN249213; *Euphorbia retusa* Forssk. 2, Morocco, *R. Riina* 1798 (MICH), *KC212359, –; *Euphorbia retusa* Forssk. 3, Morocco, *E. Batriu & al.* s.n. (BCN), HQ900652, –; *Euphorbia rhabdotosperma* Radcl.-Sm. 1, Georgia, *Y. Roskov* 793 (LE), *KC212360, *KC212618; *Euphorbia rhabdotosperma* Radcl.-Sm. 2, Georgia, *Y. Roskov* 793 (duplicate) (LE), *KC212361, –; *Euphorbia rigida* M. Bieb. 1, Ukraine, *V. Byalt & al.* 125 (LE), GU984327, –; *Euphorbia rigida* M. Bieb. 2, Greece, *W. Gutermann* 28856 (Herb. Gutermann), JN010087, *KC212619; *Euphorbia rimarum* Coss. & Balansa, Morocco, *R. Riina* 1774 (MICH), JN250230, JN249217; *Euphorbia rothiana* Spreng. 1, India, *P. Bruyns* 1143 (BOL), *KC212362, –; *Euphorbia rothiana* Spreng. 2, India, *P. Bruyns* 11474 (BOL), *KC212363, –; *Euphorbia rupestris* Ledeb. 1, Russia, *D. Geltman* 1143 (LE), GU979440, –; *Euphorbia rupestris* Ledeb. 2, Russia, *P. Berry* 7996 (MICH), *KC212364, *KC212620; *Euphorbia sahendi* Bornm. 1, Iran, *Y. Salmaki & al.* 39891 (TUH), *KC212365, *KC212621; *Euphorbia sahendi* Bornm. 2, Iran, *Y. Salmaki & al.* 39891 (duplicate) (TUH), JF732974, –; *Euphorbia salicifolia* Host 1, Austria, *L. Schratl-Ehrendorfer* 11107 (IB), JN010090, –; *Euphorbia salicifolia* Host 2, Bulgaria, *B. Frajman & P. Schönswetter* 11305 (IB), JN010091, *KC212622; *Euphorbia salicifolia* Host 3, Montenegro, *M. Niketic & al.* 11932 (IB), JN010089, –; *Euphorbia salicifolia* Host 4, Bosnia, *B. Frajman & P. Schönswetter* 12394 (IB), JN010088, –; *Euphorbia salicifolia* Host 5, Germany, *F. Schuhwerk* 06 (M), *KC212366, *KC212623; *Euphorbia sarawschanica* Regel, Kyrgyzstan, *G. Lazkov* s.n. (LE), GU979438, –; *Euphorbia saxatilis* Jacq., Austria, *B. Frajman & P. Schönswetter* 12074 (IB), JN010092, –; *Euphorbia scatorhiza* S. Carter, cult., *V. Steinmann* 1441 (RSA), AF537420, AF538181; *Euphorbia schimperii* C. Presl 1, Oman, *J. Morawetz* 332 (MICH), *KC212367, *KC212624; *Euphorbia schimperii* C. Presl 2, Oman, *J. Morawetz* 330 (MICH), *KC212369, *KC212626; *Euphorbia schimperii* C. Presl 3, Yemen, *P. Bruyns* 10266 (BOL), *KC212370, –; *Euphorbia schimperii* C. Presl 4, Yemen, *P. Bruyns* 10941 (BOL), *KC212371, *KC212627; *Euphorbia schimperii* C. Presl 5, Yemen, *P. Bruyns* 10964 (E), JN207814, –; *Euphorbia schimperii* C. Presl 6, Netherlands (cult.), *R. Riina* 1675 (MA), JN250233, JN249221; *Euphorbia schimperii* C. Presl 7, Yemen (Socotra), *J. Aldasoro & A. Susanna* 14656 (BCN), *KC212372, *KC212628; *Euphorbia schimperii* C. Presl 8, Yemen, *J. Aldasoro & A. Susanna* 14700 (BCN), *KC212368, *KC212625; *Euphorbia schimperii* C. Presl 9, cult., *V. Steinmann* 1499 (RSA), AF537537, –; *Euphorbia schimperiana* Scheele 1, Ethiopia, *J. Aldasoro* 10398 (BCN), *KC212373, *KC212629; *Euphorbia schimperiana* Scheele 2, Kenya, *I. Molombe SHMF9–2* (MICH), *KC212374, –; *Euphorbia schugnanica* B. Fedtsch., Tajikistan, *A. Konnov* 266 (MO), JN250235, –; *Euphorbia sclerocyathium* Korovin & Popov, Turkmenistan, *D. Kurbanov* 705 (MO), JN250237, JN249224; *Euphorbia sclerophylla* Boiss., South Africa, *H. Furness* 61 (PRE), *KC212375, *KC212630; *Euphorbia segetalis* var. *pinex* (L.) Lange, France, *B. Frajman & P. Schönswetter* 12231 (IB), JN010078, *KC212600; *Euphorbia segetalis* var. *segetalis* L. 1, Spain, *P. Schönswetter* 12146 (IB), JN010093, –; *Euphorbia segetalis* var. *segetalis* L. 2, Spain, *B. Frajman* 12518 (IB), JN010095, –; *Euphorbia segetalis* var. *segetalis* L. 3, Spain, *B. Frajman* 12531 (IB), JN010096, –; *Euphorbia segetalis* var. *segetalis* L. 4, Spain, *B. Frajman* 12544 (IB), JN010094, –; *Euphorbia segetalis* var. *segetalis* L. 5, Spain, *L. Barres & al.* 5 (BC), HQ900654, –; *Euphorbia segetalis* var. *segetalis* L. 6, Portugal, *R. Riina* 1547 (MICH), *KC212376, –; *Euphorbia segetalis* var. *segetalis* L. 7, Portugal, *R. Riina* 1547 (duplicate) (MICH), JN250238, JN249225; *Euphorbia seguieriana* Neck. 1, Austria, *B. Frajman & P. Schönswetter* 11095 (IB), JN010097, –; *Euphorbia seguieriana* Neck. 2, Russia, *D. Geltman* 94 (LE), GU984330, –; *Euphorbia seguieriana* Neck. 3, France, *J. Molero* 237/09 (MICH), *KC212377, *KC212631; *Euphorbia semivillosa* (Prokh.) Krylov 1, Russia, *M. Wernisch* 12476 (WHB), JN010098, *KC212632; *Euphorbia semivillosa* (Prokh.) Krylov 2, Russia, *D. Geltman* 44 (LE), GU979430, –; *Euphorbia serrata* L. 1, France, *B. Frajman & P. Schönswetter* 11445 (IB), JN010099, –; *Euphorbia serrata* L. 2, Spain, *L. Barres & al.* 9 (BC), HQ900655, –; *Euphorbia serrata* L. 3, Spain, *R. Riina* 1608 (MA), *KC212378, *KC212633; *Euphorbia sieboldiana* C. Morren & Decne., South Korea, *Tho & J.H. Kim* 2001–0001, EU659753, –; *Euphorbia smithii* S. Carter, Oman, *J. Morawetz* 336 (MICH), JN250240, JN249227; *Euphorbia sojakii* (Chrték & Křísa) Dubovik, Slovakia, *B. Frajman & P. Schönswetter* 12416 (IB), JN010100, *KC212634; *Euphorbia* sp. 1, China, *W. Jin* 011 (MICH), *KC212383, *KC212636; *Euphorbia* sp. 2, China, *W. Jin* 015 (MICH), *KC212384, *KC212637; *Euphorbia* sp. 3, Iran, *A. Pahlevani & Bahramshad* 55152 (IRAN), *KC212382, *KC212635; *Euphorbia spartiformis* Mobery, Iran, *A. Pahlevani, M. Eskandari & Bahramshad* 55156 (IRAN), *KC212379, –; *Euphorbia spathulata* Lam. 1, U.S.A., *G. Rink* 5861 (duplicate) (NY), JN250242, JN249229; *Euphorbia spathulata* Lam. 2, U.S.A., *G. Rink* 5861 (NY), *KC212380, –; *Euphorbia spathulata* Lam. 3, U.S.A., *Banks* 1601 (RSA), AF537552, –; *Euphorbia spathulata* Lam. 4, Mexico, *A. Reina* 2007–529 (MICH), *KC212381, –; *Euphorbia spinidens* Bornm. ex Prokh. 1, Iran, *B. Djavadi & Ghanbari* 47929 (IRAN), –; *KC212638; *Euphorbia spinidens* Bornm. ex Prokh. 2, Iran, *Y. Salmaki & S. Zarre* 38156 (TUH), –; *KC212639; *Euphorbia spinosa* L. 1, no locality, no collector, EU650602, –; *Euphorbia spinosa* L. 2, France, *B. Frajman & P. Schönswetter* 12217 (IB), JN010102, –; *Euphorbia spinosa* L. 3, no locality, no collector, EU650613, –; *Euphorbia spinosa* L. 4, no locality, no collector, EU650623, –; *Euphorbia spinosa* L. 5, France, *B. Frajman & P. Schönswetter* 12217 (duplicate) (IB), JN010102, –; *Euphorbia spinosa* L. 6, Italy, *R. Vilatersana & al.* 1121 (BC), HQ900656, –; *Euphorbia spinosa* L. 7, France, *J. Molero & al.* 229/09 (MICH), *KC212385, *KC212640; *Euphorbia spinosa* L. 8, Switzerland, *R. Riina* 1842 (MA), *KC212386, *KC212641; *Euphorbia squamigera* Loisel. 1, Spain, *J. Molero & A. Rovira* BCN53020 (BCN), HQ900657, –; *Euphorbia squamigera* Loisel. 2, Spain, *R. Riina* 1760 (MA), *KC212387, *KC212642; *Euphorbia squamosa* Willd., Russia, *D. Geltman* 33 (LE), GU937804, –; *Euphorbia stepposa* Zoz 1, Russia, *M. Wernisch* 12477 (WHB), JN010103, *KC212643; *Euphorbia stepposa* Zoz 2, Russia, *D. Geltman* 2 (LE), GU984333, –; *Euphorbia stolonifera* Marloth ex A.C. White, R.A. Dyer & B. Sloane 1, South Africa, *P. Bruyns* 3938 (BOL), AM040792, –; *Euphorbia stolonifera* Marloth ex A.C. White, R.A. Dyer & B. Sloane 2, South Africa, *R. Becker* 1109 (MICH), *KC212388, *KC212644; *Euphorbia stracheyi* Boiss. 1, China, *N. Yang* 0916 (KUN), *KC212389, *KC212645; *Euphorbia stracheyi* Boiss. 2, China, *W. Jin* 013 (MICH), *KC212390, *KC212646; *Euphorbia stracheyi* Boiss. 3, China, *N. Yang* 0937 (KUN), *KC212391, *KC212647; *Euphorbia striata* Thunb., South Africa, *N. Kroon* 11703 (PRE), *KC212394, –; *Euphorbia stricta* L. 1, Bosnia, *B. Frajman & P. Schönswetter* 12398 (IB), JN010104, *KC212649; *Euphorbia stricta* L. 2, Serbia, *D. Geltman* 187 (LE), *KC212395, –; *Euphorbia stricta* L. 3, Serbia, *D. Geltman* 180 (LE), GU979436, –; *Euphorbia stricta* L. 4, Iran, *Y. Salmaki & al.* 39748 (TUH), *KC212396, *KC212650; *Euphorbia stricta* L. 5, Austria, *B. Wallnöfer* 8531 (NY), AF537559, –; *Euphorbia stygiana* H.C. Watson, Portugal, *J. Molero & al.* BCN 86911 (BCN), *KC212397, *KC212651; *Euphorbia subamplexicaulis* Kar. & Kir., Kazakhstan, *S. Smirnov & al.* s.n. (LE), *KC212398, –; *Euphorbia subcordata* Ledeb., Russia, *Shmakov & al.* s.n. (LE), *KC212399, –; *Euphorbia subtilis* (Prokh.) Prokh., Russia, *N. Tzelev* 76 (LE), GU984321, –; *Euphorbia sulcata* Lens ex Loisel. 1, Spain, *L. Barres & al.* 32 (BC), HQ900659, –; *Euphorbia sulcata* Lens ex Loisel. 2, Spain, *R. Riina* 1861 (MA), *KC212400, *KC212652; *Euphorbia sultan-hassei* Å. Strid & al. 1, Greece, *R. Riina* 1568 (duplicate) (MICH), HQ900660, –; *Euphorbia sultan-hassei* Å. Strid & al. 2, Greece, *R. Riina* 1568 (MICH), *KC212401, *KC212653; *Euphorbia szovitsii* Fisch. & C.A. Mey. 1, Russia, *Y. Menitsky & al.* 126 (LE), GU984322, –; *Euphorbia szovitsii* Fisch. & C.A. Mey. 2, Iran, *A. Pahlevani* 53228 (IRAN), *KC212402, *KC212654; *Euphorbia szovitsii* Fisch. & C.A. Mey. 3, Iran, *Y. Salmaki & S. Zarre* 39999 (TUH), *KC212404, *KC212656; *Euphorbia szovitsii* Fisch. & C.A. Mey. 4, Iran, *Y. Salmaki & al.* 39631 (TUH), *KC212403, *KC212655; *Euphorbia talastavica* (Prokh.) Prokh., Kazakhstan, *D. Geltman* 206 (LE), *KC212405, *KC212657; *Euphorbia taurinensis* All., Ukraine, *V. Byalt & al.* 364 (LE), GU984337, –; *Euphorbia teheranica* Boiss., Iran, *Y. Salmaki & S. Zarre* 39917 (TUH), *KC212406, *KC212658; *Euphorbia terracina* L. 1, Spain, *P. Schönswetter* 12061 (IB), JN010105, –; *Euphorbia terracina* L. 2, Italy, *B. Frajman & P. Schönswetter* 12219 (IB), JN010106, –; *Euphorbia terracina* L. 3, Spain, *J. Molero & A. Rovira* 23/2007 (BCN), HQ900661, –; *Euphorbia terracina* L. 4, Portugal, *R. Riina* 1584 (MICH), *KC212407, *KC212659; *Euphorbia terracina* L. 5, South Africa, *R. Becker* 1528 (MICH), *KC212408, *KC212660; *Euphorbia texana* Boiss., U.S.A., *B. Tharp* s.n. (MICH), *KC212409, *KC212661; *Euphorbia tibetica* Boiss. 1, China, *Li & al.* 11667 (PE), *KC212410, –; *Euphorbia tibetica* Boiss. 2, Kyrgyzstan,

Appendix S1. Continued.

G. Lazkov s.n. (LE), *KC212411, –; *Euphorbia tirucalli* L., cult., *B. van Ee 741* (US), JN250247, JN249233; *Euphorbia transoxana* (Prokh.) Prokh., Tajikistan, *R. Kamelin 1717* (LE), GU979425, –; *Euphorbia transtagana* Boiss. 1, Portugal, *J. Molero & al. 13/2008* (BCN), *KC212412, *KC212662; *Euphorbia transtagana* Boiss. 2, Portugal, *J. Molero & al. 13/2008 (duplicate)* (BCN), HQ900662, –; *Euphorbia trichotoma* Kunth, Belize, *S. Hill 20357* (MO), AF537534, –; *Euphorbia triflora* Schott, Nyman & Kotschy, Slovenia, *B. Frajman & P. Schönswetter 11131* (IB), JN010107, *KC212663; *Euphorbia tshuiensis* (Prokh.) Serg. ex Krylov 1, Russia, *A. Tribsch & F. Essl 10284* (WU), JN010108, *KC212664; *Euphorbia tshuiensis* (Prokh.) Serg. ex Krylov 2, Russia, *D. Geltman 121* (LE), GU984314, –; *Euphorbia tshuiensis* (Prokh.) Serg. ex Krylov 3, Russia, *P. Berry 7988* (MICH), *KC212413, *KC212665; *Euphorbia tshuiensis* (Prokh.) Serg. ex Krylov 4, Russia, *P. Berry 7985* (MICH), *KC212414, *KC212666; *Euphorbia tuckeyana* Steud. ex Webb 1, Cape Verde, *J. Molero & A. Rovira BCN58758* (BCN), *KC212415, *KC212667; *Euphorbia tuckeyana* Steud. ex Webb 2, Cape Verde, *A. Santos s.n.* (BC), HQ900663, –; *Euphorbia turczaninowii* Kar. & Kir. 1, Iran, *Y. Salmaki & al. 38203* (TUH), *KC212416, *KC212668; *Euphorbia turczaninowii* Kar. & Kir. 2, China, *A. Liston 827–4* (RSA), AF537543, –; *Euphorbia turkestanica* Regel, Turkmenistan, *G. Semidel & L. Kuzamina s.n.* (LE), *KC212417, –; *Euphorbia uliginosa* Welw. ex Boiss. 1, Spain, *J. Molero & A. Rovira BCN53605* (BCN), *KC212418, *KC212669; *Euphorbia uliginosa* Welw. ex Boiss. 2, Spain, *J. Molero & A. Rovira BCN53605 (duplicate)* (BCN), HQ900664, –; *Euphorbia uralensis* Fisch. ex Link, Russia, *D. Geltman 28* (LE), GU984315, –; *Euphorbia usambarica* Pax 1, Kenya, *J. Morawetz 401* (MICH), *KC212419, *KC212670; *Euphorbia usambarica* Pax 2, Tanzania, *R. Gereau & J. Lovett 3021* (K), HQ900665, –; *Euphorbia usambarica* Pax 3, Tanzania, *H. Balslev 291* (NY), AF537538, –; *Euphorbia valdevillosocarpa* Arvat & Nyár., Moldova, *I. Zhilkina s.n.* (LE), GU979431, –; *Euphorbia valerianifolia* Lam., Greece, *W. Gutermann 34627* (Herb. Gutermann), JN010109, *KC212671; *Euphorbia vallisiana* Belli, Italy, *B. Frajman & P. Schönswetter 12224* (IB), JN010110, *KC212672; *Euphorbia variabilis* Ces., Italy, *G. Schneeweiß, P. Schönswetter & A. Tribsch 3933* (WU), JN010111, *KC212673; *Euphorbia velenovskyi* Bornm. 1, Bulgaria, *B. Frajman & P. Schönswetter 11274* (IB), JN010114, –; *Euphorbia velenovskyi* Bornm. 2, Bulgaria, *B. Frajman & P. Schönswetter 11310* (IB), JN010112, –; *Euphorbia velenovskyi* Bornm. 3, Bulgaria, *B. Frajman & P. Schönswetter 11345* (IB), JN010113, *KC212674; *Euphorbia veneris* M.S. Khan, Cyprus, *M. Galbany & al. 2039* (BC), HQ900667, *KC212675; *Euphorbia verrucosa* L. 1, Slovenia, *B. Frajman & P. Schönswetter 11771* (IB), JN010115, *KC212676; *Euphorbia verrucosa* L. 2, Germany, *J. Esser 06–25* (M), *KC212420, *KC212677; *Euphorbia virgata* Waldst. & Kit. 1, Austria, *B. Frajman & P. Schönswetter 11101* (IB), JN010118, *KC212678; *Euphorbia virgata* Waldst. & Kit. 2, Serbia, *B. Frajman & P. Schönswetter 11252* (IB), JN010119, –; *Euphorbia virgata* Waldst. & Kit. 3, Ukraine, *B. Frajman & P. Schönswetter 12480* (IB), JN010117, –; *Euphorbia virgata* Waldst. & Kit. 4, Russia, *T. Elias 9850* (RSA), AF537545, –; *Euphorbia virgata* Waldst. & Kit. 5, Russia, *D. Geltman 169* (LE), GU984317, –; *Euphorbia virgata* Waldst. & Kit. 6, Russia, *D. Geltman s.n.*, *KC212425, –; *Euphorbia virgata* Waldst. & Kit. 7, U.S.A., *M. Kim & K. Park s.n.*, EU659754, –; *Euphorbia virgata* Waldst. & Kit. 8, Canada, *M. Kim & K. Park 2001–0035*, EU659755, –; *Euphorbia virgata* Waldst. & Kit. 9, cult., *RBG Kew 675–68.00450* (K), EU659756, –; *Euphorbia virgata* Waldst. & Kit. 10, Austria, *F. Schuhwerk 6/237* (M), *KC212421, *KC212679; *Euphorbia virgata* Waldst. & Kit. 11, Germany, *F. Schuhwerk 7/85* (M), *KC212422, *KC212680; *Euphorbia virgata* Waldst. & Kit. 12, Iran, *Y. Salmaki & al. 39970* (TUH), *KC212423, *KC212681; *Euphorbia virgata* Waldst. & Kit. 13, Spain, *R. Riina 1868* (MA), *KC212424, *KC212682; *Euphorbia virgata* Waldst. & Kit. 14, Spain, *J. Molero & J. Vallverdú s.n.* (BCN), HQ900604 (as *E. esula*), –; *Euphorbia virgata* × *esula* 1, U.S.A., *M. Kim & K. Park s.n.*, EU659757, –; *Euphorbia virgata* × *esula* 2, Canada, *M. Kim & K. Park 2001–0053*, EU659758, –; *Euphorbia wallichii* Hook.f. 1, China, *W. Jin 009* (MICH), *KC212426, *KC212683; *Euphorbia wallichii* Hook.f. 2, China, *W. Jin 012* (MICH), *KC212427, –; *Euphorbia* × *popovii* Rotschild, Kazakhstan, *E. Rotschild 292* (LE), –, *KC212608; *Euphorbia* × *pseudoesula* Schur, Canada, *M. Kim & K. Park s.n.*, EU659761, –; *Euphorbia yaroslavii* Poljakov, Kazakhstan, *A. Urazova s.n.* (AA), *KC212429, –; *Neoguillauminia cleopatra* (Baill.) Croizat, New Caledonia, *K. Cameron 2015* (NY), JN250099, JN249090.