

Supplementary Table S1. Taxa, collection localities, voucher information, and GenBank accession numbers for DNA sequences included in this study. GenBank accession numbers are listed in the following order: GBSSI, COS14, cpDNA spacers (*trnH*^{GUG}–*psbA*, *rpl32*–*trnL*^{UAG}, *ndhF*–*rpl32*, *trnD*^{GUC}–*trnT*^{GGU}). Voucher specimens are deposited in the following herbaria: ARIZ = University of Arizona; BLFU = University of the Free State; GH = Harvard University Herbaria; HIB = Wuhan Institute of Botany; TAIC = Texas A&M University, Kingsville. Asterisks indicate those individuals that were included in the plastid-based dating estimation.

***Lycium* L.**

****L. andersonii*** A. Gray—Baja California, Mexico, *Miller 97-12* (ARIZ); DQ124503, GQ301177 [Pinal Co., Arizona, USA, *Miller & Levin 06-01* (GH)], FJ189607, FJ189736, FJ189669, FJ189631.

L. barbarum L.—Ningxia, China, *Miller & Levin 08-51* (GH); HM194909, HM194924, HM195003, HM194962, HM194983, HM194944.

****L. barbarum*** L.—Qinghai, China, *Miller & Levin 08-61* (GH); HM194910, HM194925, HM195004, HM194963, HM194984, HM194945.

L. bosciifolium Schinz—Northern Cape, South Africa, *Venter 654* (BLFU); EF137759, HM194926, HM195005, HM194964, HM194985, HM194946.

****L. carolinianum*** Walt.—Texas, USA, *Hempel 843* (TAIC); DQ124512, GQ301178, GQ301192, GQ301193, GQ301194, FJ444883.

****L. chilense*** Bertero var. *chilense*—Coquimbo, Chile, *Miller et al. 04-101* (GH); EF137765, GQ301180, FJ189611, HM194965, FJ189673, FJ189635.

****L. chinense*** Miller—Hubei, China, *Miller & Levin 08-36* (GH); HM194911, HM194927, HM195006, HM194966, HM194986, HM194947.

L. chinense Miller—Shaanxi, China, Wuhan Experimental Garden 5XZY24, Wuhan Institute of Botany; HM194912, HM194928, HM195007, HM194967, HM194987, HM194948.

L. dasystemum Pojarkova—Qinghai, China, *Dong s.n.* (HIB); HM194913, HM194929-30, HM195008, HM194968, HM194988, HM194949.

****L. europaeum*** L.—Israel, *Danin 01-05-2005* (GH); EF137773, HM194931, HM195009, HM194969, HM194989, HM194950.

****L. ferocissimum*** Miers—Western Cape, South Africa, *Miller et al. 05-199* (GH); GQ301195, GQ301183, FJ189615, FJ189744, FJ189677, FJ189639.

****L. hirsutum*** Dunal—Eastern Cape, South Africa, *Venter 646* (BLFU); EF137777, HM194932, FJ189616, FJ189745, FJ189678, FJ189640.

****L. oxycarpum*** Dunal—Western Cape, South Africa, *Miller et al. 05-206* (GH); EF137784, GQ301184, FJ189618, FJ189747, FJ189680, FJ189642.

****L. pumilum*** Dammer—Northern Cape, South Africa, *Miller et al. 05-125* (GH); EF137786, HM194933, HM195010, HM194970, HM194990, HM194951.

L. ruthenicum Murray—Ningxia, China, *Miller & Levin 08-50* (GH); HM194914-15, HM194934-35, HM195011, HM194971, HM194991, HM194952.

L. ruthenicum Murray—Qinghai, China, Wuhan Experimental Garden HG-8, Wuhan Institute of Botany; HM194916, HM194936, HM195012, HM194972, HM194992, HM194953.

****L. shawii*** Roem. & Schult.—Northern Province, South Africa, *Venter 546* (BLFU); HM194917, HM194938, HM195014, HM194974, HM194994, HM194955.

L. shawii Roem. & Schult.—New Delhi, India, *Kamath 09-16* (GH); HM194918, HM194937, HM195013, HM194973, HM194993, HM194954.

****L. tenue*** Willd.—Western Cape, South Africa, *Miller et al. 05-220* (GH); EF137794,

GQ301190, FJ189625, FJ189754, FJ189687, FJ189649.

L. truncatum Y. C. Wang—Qinghai, China, *Miller & Levin 08-57* (GH); HM194919, HM194939, HM195015, HM194975, HM194995, HM194956.

L. truncatum Y. C. Wang—Qinghai, China, *Miller & Levin 08-67* (GH); HM194920, HM194940, HM195016, HM194976, HM194996, HM194957.

L. villosum Schinz—Northern Cape, South Africa, *Venter 653* (BLFU); HM194921, HM194941, HM195017, HM194977, HM194997, HM194958.

****L. yunnanense*** Kuang & A. M. Lu—Yunnan, China, *Miller & Levin 08-42* (GH); HM194922, HM194942, HM195018, HM194978, HM194998, HM194959.

L. yunnanense Kuang & A. M. Lu—Yunnan, China, *Miller & Levin 08-43* (GH); HM194923, HM194943, HM195019, HM194979, HM194999, HM194960.

Outgroup

****Nolana werdermannii*** I. M. Johnst.—Chile, *Miller et al. 04-77* (GH); EF137799, GQ301175, FJ189604, FJ189733, FJ189666, FJ189628.
