

Supplementary Materials: Phylogenetics of *Taxus* Using the Internal Transcribed Spacers of Nuclear Ribosomal DNA and Plastid *trnL-F* Regions

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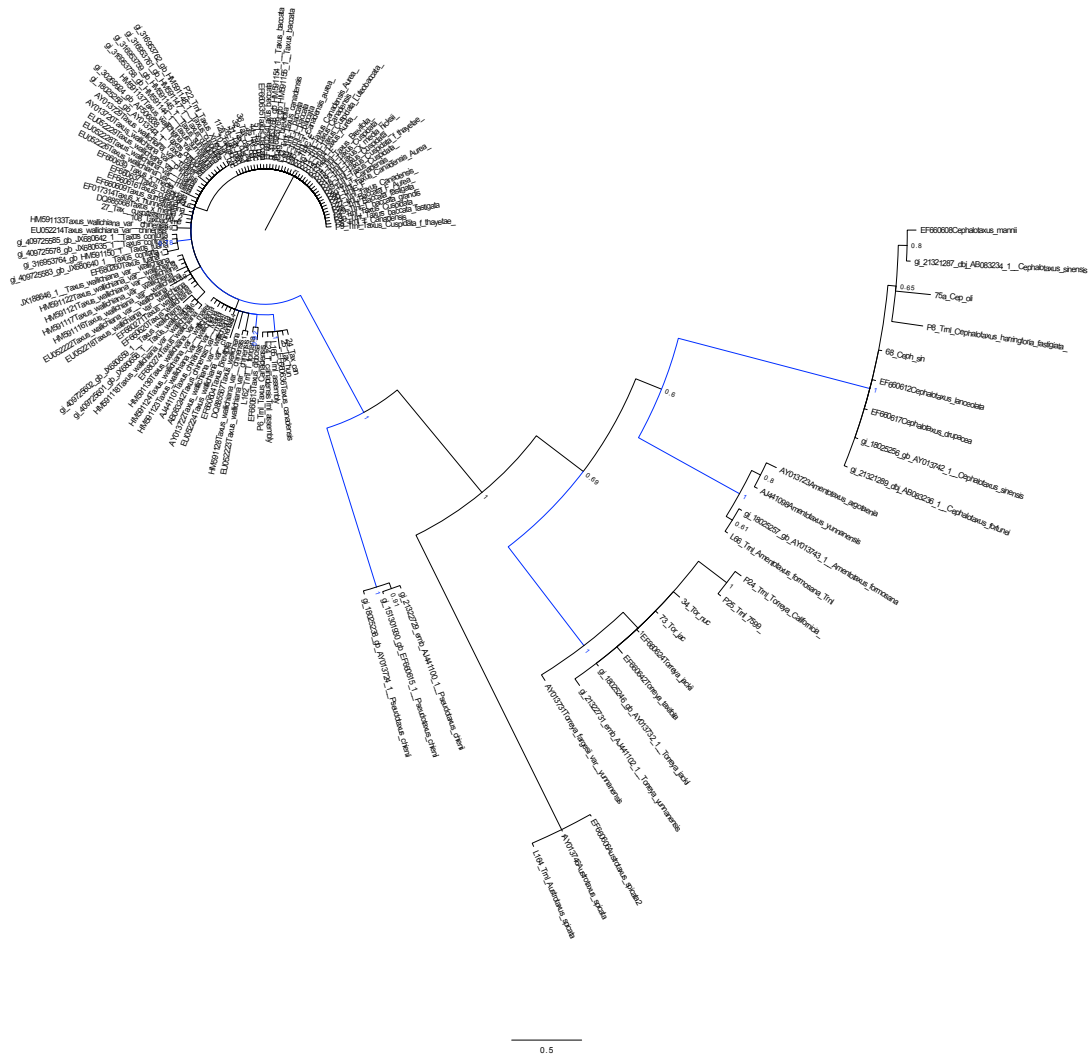
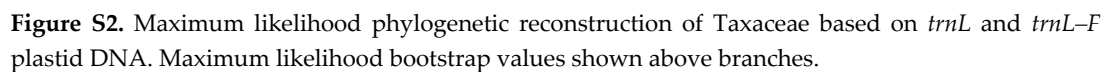


Figure S1. Bayesian inference phylogenetic reconstruction of Taxaceae based on *trnL* and *trnL-F* plastid DNA. Bayesian posterior probability values shown above branches. Summary Bayesian inference tree of same data is shown in Figure 2.



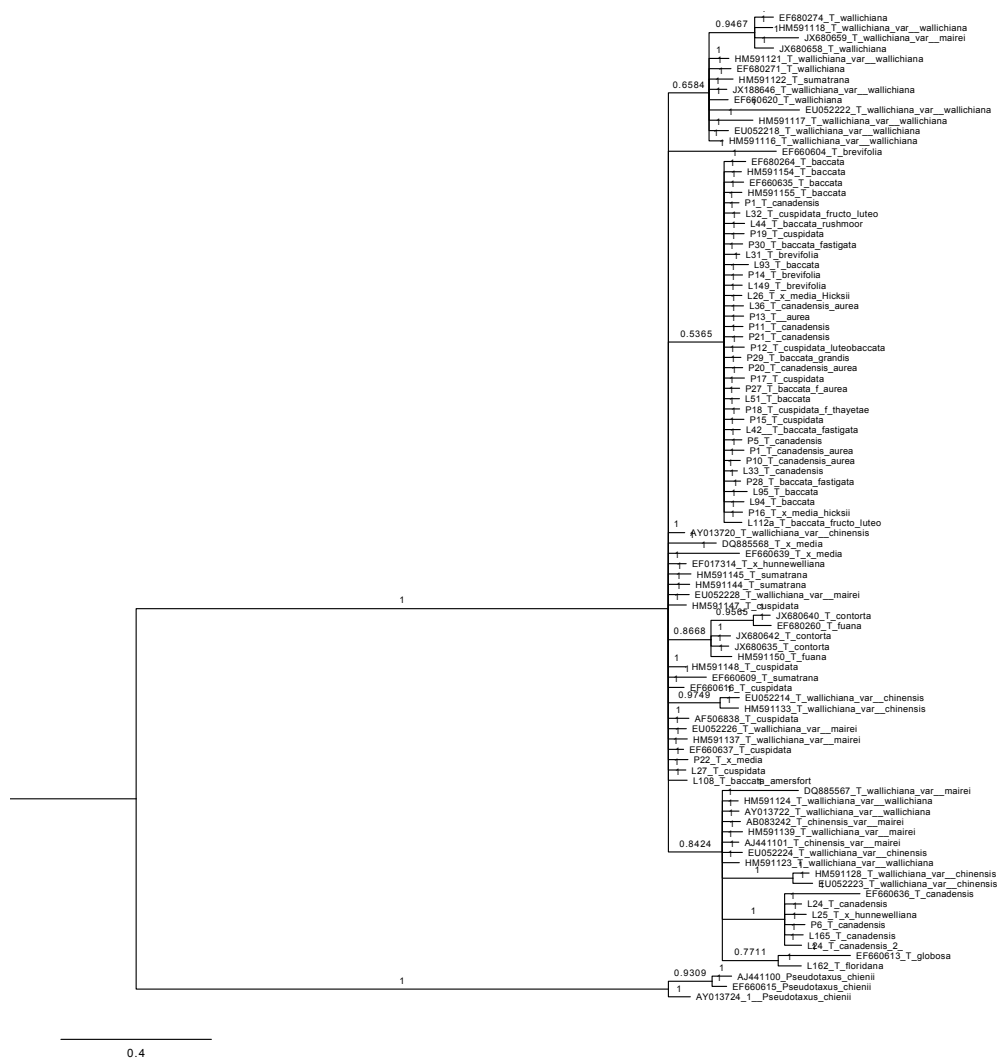


Figure S3. Bayesian analysis of trnL+trnL-F data including Taxus and Pseudotaxus only. Bayesian posterior probability values shown above the branches.

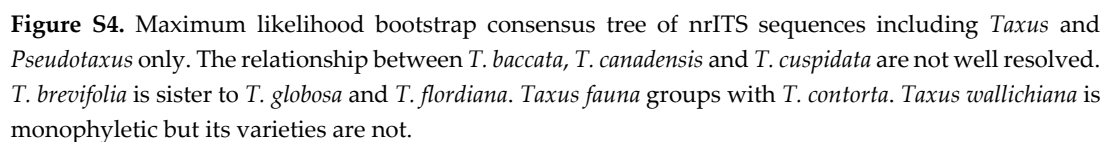


Figure S4. Maximum likelihood bootstrap consensus tree of nrITS sequences including *Taxus* and *Pseudotaxus* only. The relationship between *T. baccata*, *T. canadensis* and *T. cuspidata* are not well resolved. *T. brevifolia* is sister to *T. globosa* and *T. flordiana*. *Taxus fauna* groups with *T. contorta*. *Taxus wallichiana* is monophyletic but its varieties are not.

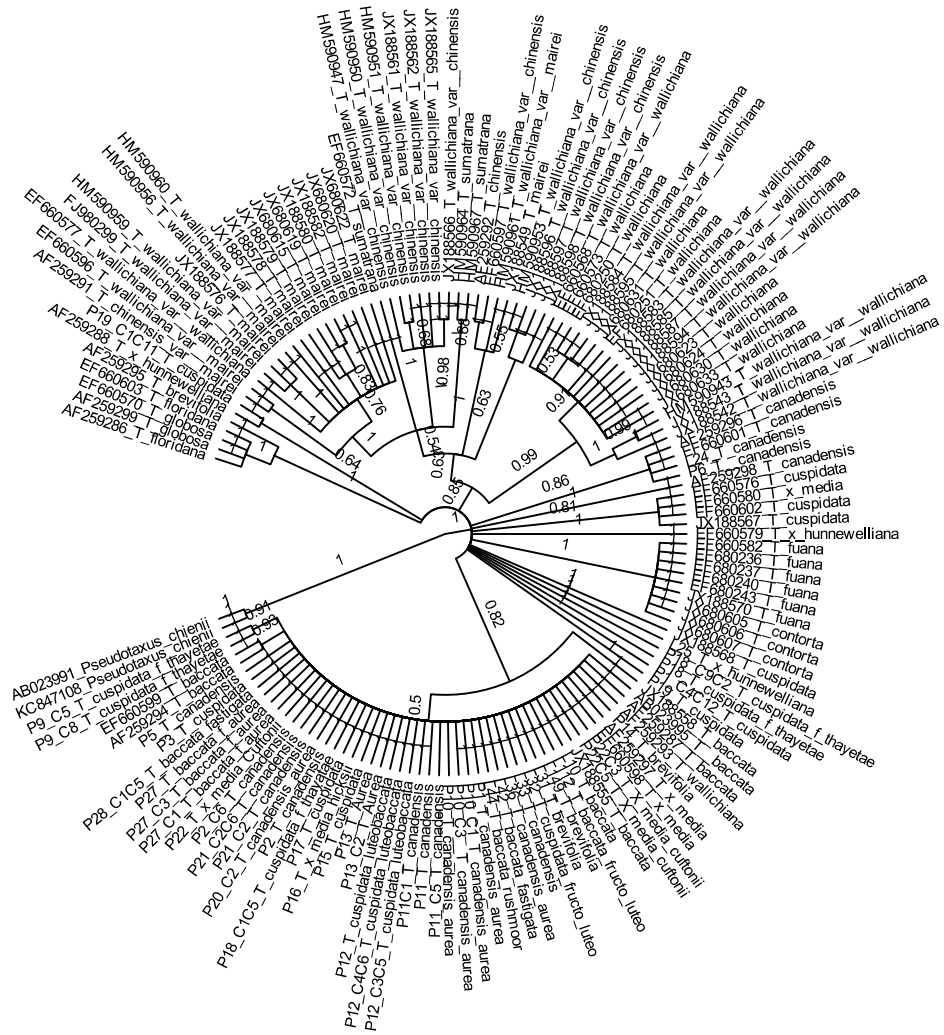


Figure S5. Bayesian analysis of nrITS sequence data for *Taxus* and *Pseudotaxus* only. Bayesian posterior probability values shown above the branches.

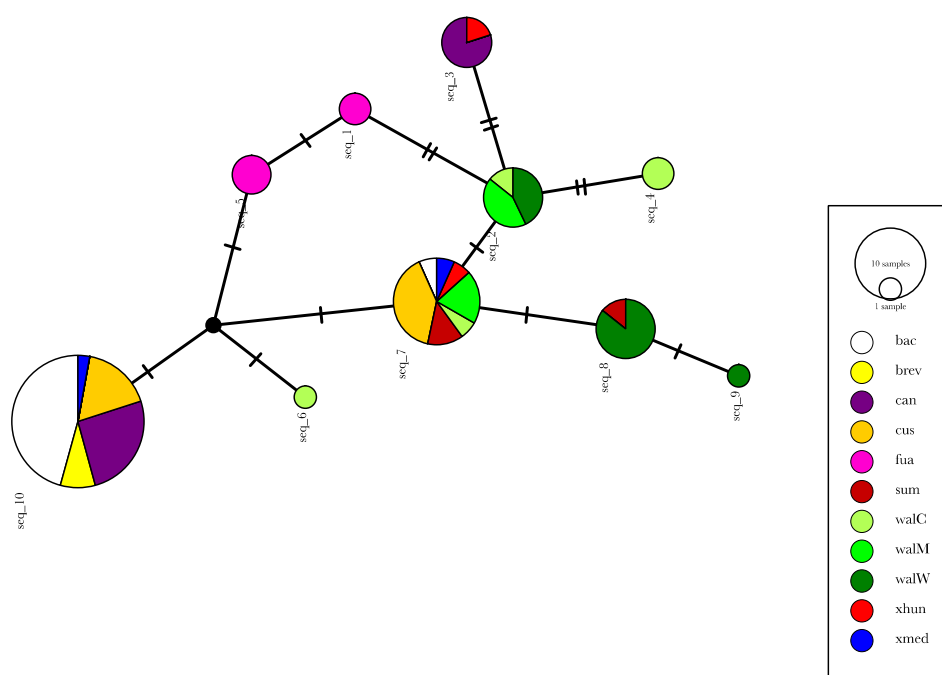
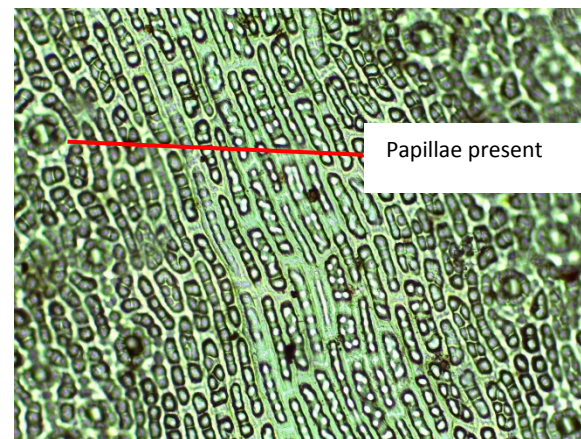


Figure S6. TrnL intron and trnL-F haplotype TCS analysis. Bac=T. baccata; brev= T. brevifolia; can= T. canadensis; cus= T. cuspidata; fua= T. fuana; sum= T. sumatrana; wal (C, M, W) =T. wallichiana var. chinensis, var. mairei and var. wallichiana; xhun= T. xhunnewelliana; xmed= T. xmedia. Seq. numbers on pie charts are haplotype numbers 1=10.

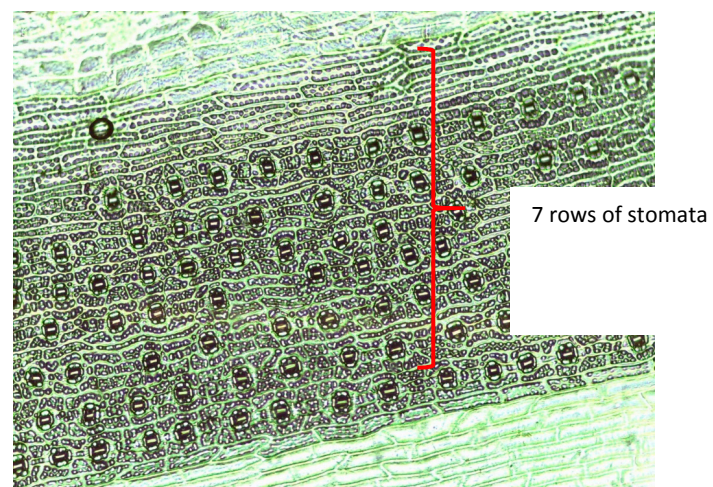
a



b

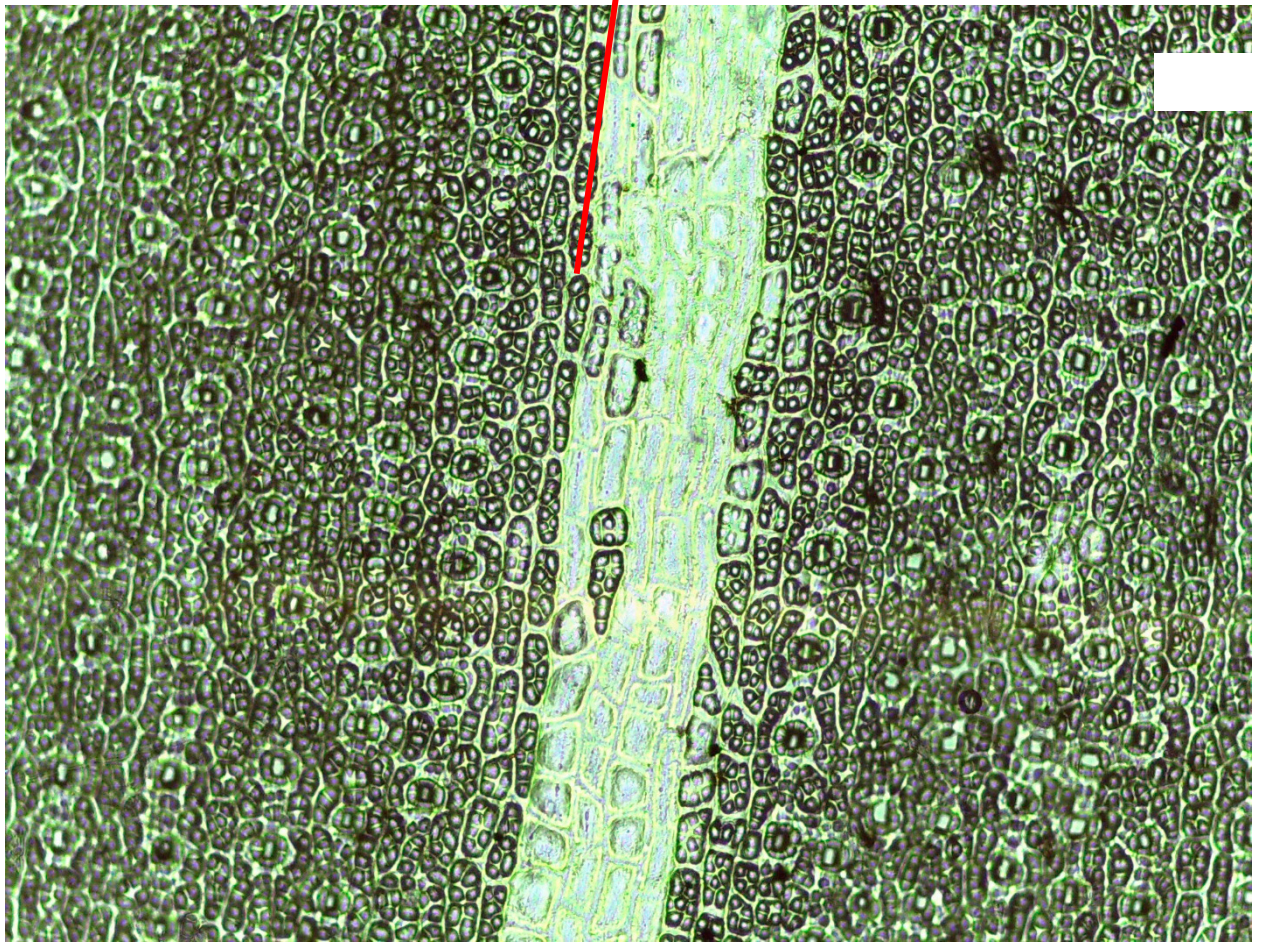


c



d

Papillae



e

Smooth midrib

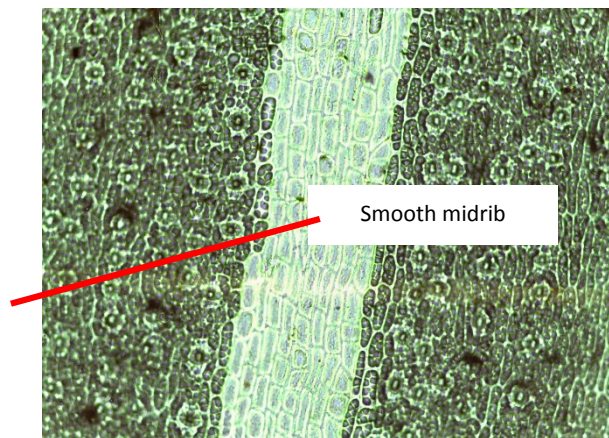


Figure S7. Leaf anatomy of *Taxus*. a-e. Representative slides shown. Full data summarised in supplementary Table A1. **a** P16 *T. xmedia* 'Hicksii' at 20x magnification showing stomata; **b** P14 *Taxus*

brevifolia at 10x magnification. Papillae present on middle of mid rib; **c** P16 Taxus x media ‘Hicksii’ at 10x magnification showing 7 rows of stomata; **d** P29 Taxus baccata ‘Grandis’ at 10x magnification. Some papillae present on the midrib; **e** P29 Taxus baccata ‘Grandis’ 10x papillae absent.

Table S1a. Sequences used from GenBank for nrITS analysis in addition to the newly sequenced samples.

Name	GenBank Code <i>ITS</i>
<i>Amentotaxus argotaenia</i>	gi 641453453 gb KJ588939.1
<i>Amentotaxus formosana</i>	gi 6174774 dbj AB023976.1
<i>Amentotaxus formosana</i>	gi 343404279 gb JF975884.1
<i>Amentotaxus formosana</i>	gi 343404278 gb JF975883.1
<i>Amentotaxus formosana</i>	gi 343404277 gb JF975882.1
<i>Amentotaxus yunnanensis</i>	gi 6174780 dbj AB023980.1
<i>Amentotaxus yunnanensis</i>	gi 641453452 gb KJ588938.1
<i>Austrotaxus spicata</i>	gi 6174777 dbj AB023978.1
<i>Austrotaxus spicata</i>	gi 151301884 gb EF660569.1
<i>Cephalotaxus drupacea</i>	gi 151301890 gb EF660575.1
<i>Cephalotaxus hainanensis</i>	gi 151301907 gb EF660592.1
<i>Cephalotaxus harringtonia</i>	gi 151301896 gb EF660581.1
<i>Cephalotaxus koreana</i>	gi 151301889 gb EF660574.1
<i>Cephalotaxus lanceolata</i>	gi 343404500 gb JF976105.1
<i>Cephalotaxus mannii</i>	gi 6174788 dbj AB023985.1
<i>Cephalotaxus mannii</i>	gi 343404507 gb JF976112.1
<i>Cephalotaxus mannii</i>	gi 343404504 gb JF976109.1
<i>Cephalotaxus oliver</i>	gi 343404509 gb JF976114.1
<i>Cephalotaxus oliver</i>	gi 343404508 gb JF976113.1
<i>Cephalotaxus sinensis</i>	gi 6174843 dbj AB023987.1
<i>Cephalotaxus sinensis</i>	gi 343404514 gb JF976119.1
<i>Cephalotaxus sinensis</i>	gi 343404511 gb JF976116.1
<i>Taxus baccata</i>	gi 6174855 dbj AB023995.1
<i>Taxus baccata</i>	gi 359466028 gb JN255686.1
<i>Taxus baccata</i>	gi 403240040 gb JX188555.1
<i>Taxus baccata</i>	gi 403240042 gb JX188557.1
<i>Taxus baccata</i>	gi 403240043 gb JX188558.1
<i>Taxus baccata</i>	gi 13897861 gb AF259294.1
<i>Taxus baccata</i>	gi 13897854 gb AF259287.1
<i>Taxus baccata</i>	gi 151301914 gb EF660599.1
<i>Taxus brevifolia</i>	gi 13897862 gb AF259295.1
<i>Taxus canadensis</i>	gi 13897863 gb AF259296.1
<i>Taxus canadensis</i>	gi 13897865 gb AF259298.1
<i>Taxus canadensis</i>	gi 151301916 gb EF660601.1
<i>Taxus chinensis</i>	gi 13897859 gb AF259292.1
<i>Taxus chinensis</i>	gi 13897858 gb AF259291.1
<i>Taxus contorta</i>	gi 751372675 gb KM886874.1
<i>Taxus contorta</i>	gi 409725547 gb JX680607.1
<i>Taxus contorta</i>	gi 409725545 gb JX680605.1
<i>Taxus contorta</i>	gi 409725546 gb JX680606.1
<i>Taxus cuspidata</i>	gi 403240052 gb JX188567.1
<i>Taxus cuspidata</i>	gi 403240053 gb JX188568.1
<i>Taxus cuspidata</i>	gi 13897856 gb AF259289.1
<i>Taxus cuspidata</i>	gi 13897857 gb AF259290.1
<i>Taxus cuspidata</i>	gi 151301891 gb EF660576.1
<i>Taxus cuspidata</i>	gi 151301917 gb EF660602.1
<i>Taxus floridana</i>	gi 13897853 gb AF259286.1
<i>Taxus floridana</i>	gi 151301918 gb EF660603.1
<i>Taxus fauna</i>	gi 403240055 gb JX188570.1
<i>Taxus fauna</i>	gi 158132328 gb EF680237.1
<i>Taxus fauna</i>	gi 158132331 gb EF680240.1
<i>Taxus fauna</i>	gi 158132334 gb EF680243.1

<i>Taxus fauna</i>	gi 158132327 gb EF680236.1
<i>Taxus fauna</i>	gi 151301897 gb EF660582.1
<i>Taxus globosa</i>	gi 13897866 gb AF259299.1
<i>Taxus globosa</i>	gi 151301885 gb EF660570.1
<i>Taxus mairei</i>	gi 751372676 gb KM886875.1
<i>Taxus mairei</i>	gi 409725559 gb JX680619.1
<i>Taxus mairei</i>	gi 403240061 gb JX188576.1
<i>Taxus mairei</i>	gi 403240062 gb JX188577.1
<i>Taxus mairei</i>	gi 403240063 gb JX188578.1
<i>Taxus mairei</i>	gi 403240064 gb JX188579.1
<i>Taxus mairei</i>	gi 403240034 gb JX188549.1
<i>Taxus mairei</i>	gi 409725555 gb JX680615.1
<i>Taxus mairei</i>	gi 403240065 gb JX188580.1
<i>Taxus mairei</i>	gi 403240067 gb JX188582.1
<i>Taxus mairei</i>	gi 409725562 gb JX680622.1
<i>Taxus mairei</i>	gi 409725560 gb JX680620.1
<i>Taxus sumatrana</i>	gi 151301887 gb EF660572.1
<i>Taxus sumatrana</i>	gi 316953979 gb HM590967.1
<i>Taxus sumatrana</i>	gi 316953976 gb HM590964.1
<i>Taxus wallichiana</i>	gi 409725563 gb JX680623.1
<i>Taxus wallichiana</i>	gi 409725571 gb JX680631.1
<i>Taxus wallichiana</i>	gi 409725564 gb JX680624.1
<i>Taxus wallichiana</i>	gi 409725570 gb JX680630.1
<i>Taxus wallichiana</i>	gi 409725573 gb JX680633.1
<i>Taxus wallichiana</i>	gi 13897860 gb AF259293.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 403240081 gb JX188596.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 403240082 gb JX188597.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 403240046 gb JX188561.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 403240047 gb JX188562.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 403240083 gb JX188598.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 403240050 gb JX188565.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 403240051 gb JX188566.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 316953964 gb HM590952.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 316953965 gb HM590953.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 316953962 gb HM590950.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 316953959 gb HM590947.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 316953963 gb HM590951.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 151301912 gb EF660597.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 316953968 gb HM590956.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 151301911 gb EF660596.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 316953973 gb HM590961.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 238695909 gb FJ980299.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 316953972 gb HM590960.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 316953971 gb HM590959.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 403240027 gb JX188542.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 403240069 gb JX188584.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 403240068 gb JX188583.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 403240070 gb JX188585.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 403240072 gb JX188587.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 403240028 gb JX188543.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 403240079 gb JX188594.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 403240080 gb JX188595.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 151301892 gb EF660577.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 151301883 gb EF660568.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 316953955 gb HM590943.1
<i>Taxus wallichiana</i>	gi 158132342 gb EF680251.1
<i>Taxus wallichiana</i>	gi 151301888 gb EF660573.1
<i>Taxus wallichiana</i>	gi 158132341 gb EF680250.1
<i>Taxus x hunnewelliana</i>	gi 13897855 gb AF259288.1
<i>Taxus x hunnewelliana</i>	gi 151301894 gb EF660579.1
<i>Taxus x media</i>	gi 13897864 gb AF259297.1
<i>Taxus x media</i>	gi 151301913 gb EF660598.1
<i>Taxus x media</i>	gi 151301895 gb EF660580.1
<i>Torreya californica</i>	gi 20339345 gb AF259274.1
<i>Torreya californica</i>	gi 6174858 dbj AB023997.1
<i>Torreya californica</i>	gi 641453440 gb KJ588926.1
<i>Torreya californica</i>	gi 641453441 gb KJ588927.1

<i>Torreya fargesii</i>	gi 641453432 gb KJ588918.1
<i>Torreya fargesii</i>	gi 641453433 gb KJ588919.1
<i>Torreya fargesii</i>	gi 641453435 gb KJ588921.1
<i>Torreya fargesii</i>	gi 641453436 gb KJ588922.1
<i>Torreya nucifera</i>	gi 641453426 gb KJ588912.1
<i>Torreya nucifera</i>	gi 641453427 gb KJ588913.1
<i>Torreya taxifolia</i>	gi 641453437 gb KJ588923.1
<i>Torreya taxifolia</i>	gi 641453438 gb KJ588924.1
<i>Torreya taxifolia</i>	gi 641453439 gb KJ588925.1

Table S2b. Sequences used from GenBank for *TrnL-F* analysis in addition to the newly sequenced samples.

Name	GenBank Code <i>TrnL-F</i>
<i>Cephalotaxus drupacea</i>	gi 151301932 gb EF660617.1
<i>Cephalotaxus fortunei</i>	gi 21321289 dbj AB083236.1
<i>Cephalotaxus lanceolata</i>	gi 151301927 gb EF660612.1
<i>Cephalotaxus mannii</i>	gi 151301923 gb EF660608.1
<i>Cephalotaxus sinensis</i>	gi 21321287 dbj AB083234.1
<i>Cephalotaxus sinensis</i>	gi 18025256 gb AY013742.1
<i>Pseudotaxus chienii</i>	gi 21322729 emb AJ441100.1
<i>Pseudotaxus chienii</i>	gi 18025238 gb AY013724.1
<i>Taxus baccata</i>	gi 157381297 gb EF680264.1
<i>Taxus baccata</i>	gi 18025258 gb AY013744.1
<i>Taxus baccata</i>	gi 151301950 gb EF660635.1
<i>Taxus baccata</i>	gi 316953769 gb HM591155.1
<i>Taxus baccata</i>	gi 316953768 gb HM591154.1
<i>Taxus brevifolia</i>	gi 151301919 gb EF660604.1
<i>Taxus canadensis</i>	gi 151301951 gb EF660636.1
<i>Taxus chinensis</i> var. <i>mairei</i>	gi 21321295 dbj AB083242.1
<i>Taxus chinensis</i> var. <i>mairei</i>	gi 21322730 emb AJ441101.1
<i>Taxus contorta</i>	gi 409725583 gb JX680640.1
<i>Taxus contorta</i>	gi 409725578 gb JX680635.1
<i>Taxus contorta</i>	gi 409725585 gb JX680642.1
<i>Taxus cuspidata</i>	gi 30269924 gb AF506838.1
<i>Taxus cuspidata</i>	gi 151301931 gb EF660616.1
<i>Taxus cuspidata</i>	gi 151301952 gb EF660637.1
<i>Taxus cuspidata</i>	gi 316953761 gb HM591147.1
<i>Taxus cuspidata</i>	gi 316953762 gb HM591148.1
<i>Taxus fauna</i>	gi 157381293 gb EF680260.1
<i>Taxus fauna</i>	gi 316953764 gb HM591150.1
<i>Taxus globosa</i>	gi 151301928 gb EF660613.1
<i>Taxus sumatrana</i>	gi 151301924 gb EF660609.1
<i>Taxus sumatrana</i>	gi 316953758 gb HM591144.1
<i>Taxus sumatrana</i>	gi 316953759 gb HM591145.1
<i>Taxus wallichiana</i>	gi 157381304 gb EF680271.1
<i>Taxus wallichiana</i>	gi 409725602 gb JX680659.1
<i>Taxus wallichiana</i>	gi 409725601 gb JX680658.1
<i>Taxus wallichiana</i>	gi 157381307 gb EF680274.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 18025234 gb AY013720.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 158139179 gb EU052214.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 316953747 gb HM591133.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 316953742 gb HM591128.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 158139188 gb EU052223.1
<i>Taxus wallichiana</i> var. <i>chinensis</i>	gi 158139189 gb EU052224.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 18025243 gb AY013729.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 114152646 gb DQ885567.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 158139191 gb EU052226.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 158139194 gb EU052229.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 316953751 gb HM591137.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 158139193 gb EU052228.1
<i>Taxus wallichiana</i> var. <i>mairei</i>	gi 316953753 gb HM591139.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 403240131 gb JX188646.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 18025236 gb AY013722.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 158139187 gb EU052222.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 316953730 gb HM591116.1

<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 316953731 gb HM591117.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 316953735 gb HM591121.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 316953737 gb HM591123.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 316953738 gb HM591124.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 316953732 gb HM591118.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 158139183 gb EU052218.1
<i>Taxus wallichiana</i> var. <i>wallichiana</i>	gi 316953736 gb HM591122.1
<i>Taxus wallichiana</i>	gi 151301935 gb EF660620.1
<i>Taxus x hunnewelliana</i>	gi 119114806 gb EF017314.1
<i>Taxus x media</i>	gi 114152647 gb DQ885568.1
<i>Taxus x media</i>	gi 151301954 gb EF660639.1
<i>Torreya fargesii</i> var. <i>yunnanensis</i>	gi 18025245 gb AY013731.1
<i>Torreya jackii</i>	gi 18025246 gb AY013732.1
<i>Torreya jackii</i>	gi 151301939 gb EF660624.1
<i>Torreya taxifolia</i>	gi 151301957 gb EF660642.1
<i>Torreya yunnanensis</i>	gi 21322731 emb AJ441102.1

Table S2. Leaf anatomy data for *Taxus* species.

Sample name	Sample no.	Rows of stomata	Midrib
<i>T. baccata</i>	T1	8	Papillae present
<i>T. baccata</i>	S.n. St. Doolaghs	7 to 8	Papillae absent
<i>T. baccata</i> 'Grandis'	6603	7	Papillae present near tip of leaf only
<i>T. brevifolia</i>	P14	5 to 7	Papillae present near tip of leaf only
<i>T. canadensis</i>	P11	5 to 6	Papillae present at tip
<i>T. canadensis</i> 'Aurea'	P13	4	Papillae present near tip of leaf only
<i>T. cuspidata</i>	P15	8 to 9	Papillae present. Papillae absent at base of leaf
<i>T. cuspidata</i>	P17	6	Papillae present at tip of leaf only
<i>T. cuspidata</i>	P19	6	Papillae present near base of leaf only
<i>T. ×media</i> 'Hicksii'	P16	7	Papillae absent
<i>T. cuspidata</i> f. <i>thayerae</i>	P9	9	Papillae absent
<i>T. cuspidata</i> 'Luteobaccata'	P12	6	Papillae present near base of leaf only