Pleurodira
Kinosternon odoratus
Trachemys scripta
Siebenrockiella crassicollis
Batagur baska
Mauremys caspica
Fontainechelon cassouleti †
Pelorochelon soriana †
'Testudo' eocaenica †
Hadrianus majusculus †
Hadrianus corsoni †
Oligopherus laticuneus †
Stylemys capax †
Ergilemys insolitus †
Cheirogaster maurini †
Taraschelon gigas †
Stylemys inusitata †
Stylemys nebrascensis †
aff. 'Stylemys' gisellae †
Namibchersus namaquensis †
Hesperotestudo osborniana †
Hesperotestudo crassiscutata †
Hesperotestudo bermudae †
Hesperotestudo williamsi †
Hesperotestudo orthopygia †
Gopherus agassizii
Gopherus polyphemus
Gopherus edae †
Gopherus hexagonatus †
Gopherus hollandi †
Gopherus auffenbergi †
Gopherus donlaloi †
Geochelone elegans
Centrochelys sulcata
'Chelonoidis' gringorum †
Megalochelys atlas †
Stigmochelys pardalis
Floridemys nana †
Kinixys erosa
Kinixys homeana
Chelonoidis chilensis
Chelonoidis nigra
Chelonoidis carbonaria
Chelonoidis denticulata
Malacochersus tornieri †
Impregnochelys pachytestis †
Gigantochersina ammon †
Titanochelon bacharidisi †
Titanochelon bolivari †
Titanochelon vitodurana †
Indotestudo forstenii
Indotestudo elongata
'Testudo' costaricensis †
'Testudo' brontops †
'Testudo' kaiseni †
'Testudo' promarginata †
Paleotestudo canetotiana †
'Testudo' antiqua †
Mesochersus orangeus
'Testudo' shensiensis †
'Testudo' lunellensis †
'Testudo' oughlamensis †
Testudo horsfieldii
Testudo hermanni
Testudo graeca
Testudo marginata
Testudo kleinmanni
Testudo marmorum †

Pan-Testudinidae
Gopherus-clade
Geochelona
Testudinidae
Testudininae
Testudona

50/100, 0.114/61, 0.079/?, 0.079/?, 0.053/?, 0.057/?, 0.000/?, 0.053/?, 0.044/?, 0.048/?, 0.02000/?, 0.048/?, 0.044/?, 0.006/?, 0.002/?, 0.002/?, 0.031/?, 0.039/?, 0.037/?, 0.056/?, 0.073/?, 0.029/?, 0.026/?, 0.045/?, 0.021/?, 0.212/57, 0.225/?, 0.081/60, 0.060/?, 0.055/?, 0.052/?, 0.023/?, 0.065/?, 0.065/?, 0.057/?, 0.049/?, 0.049/?, 0.049/?, 0.390/99, 0.049/?, 0.196/90, 0.149/?, 0.152/95, 0.002/?, 0.002/?, 0.002/?, 0.015/?, 0.026/?, 0.028/?, 0.028/?, 0.028/?, 0.028/?, 0.020/?, 0.060/?, 0.026/?, 0.050/?, 0.038/?, 0.026/?, 0.035/?, 0.061/?, 0.091/58, 0.091/53, 0.136/64

Figure S2. Consensus tree resulting from the Implied Weighted Maximum Parsimony analysis when *Manouria emys* and *M. impressa* are excluded (TL = 10688, CI = 0.350, RI= 0.178). aff. "*Stylemys*" *gisellae* sp. nov. in bold. Numbers below the lines indicate Bremer/boostrap values. Extinct taxa are marked with a cross.