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MASTER OF SCIENCE

"Körpergrößentrends in fossilen Landschildkröten aus dem Neogen"

"Body size trends in Neogene testudinid tortoises"

vorgelegt von

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2 Introduction

2.1 Body size evolution

The body size of organisms has been of interest to researchers for a long time (Peters, 1983; **?**). It is a universal trait that can be easily measured and compared among different organisms (**?**). Furthermore, it is readily available for many animals in the fossil record which allows for comparison with extant species (**?**). A number of biotic and abiotic factors including habitat, resource availability, competition, climate and many more influence body size which is also linked to ecological and evolutionary processes (Blackburn and Gaston, 1994; Blueweiss et al., 1978; Smith and Lyons, 2009).

Patterns of body size variation across spatial and/or temporal scales have been described for many animal groups and some have been summarised as ecological rules (Angielczyk et al., 2015; **?**). Cope's rule describes the gradual within-lineage body size increase over time (**?**). According to the island rule large species become smaller on islands, because of a reduced predation risk, while small species often show an increase in body size due to reduced competition (Foster, 1964). Bergmann's rule (Bergmann, 1848) states that animals attain a larger body size at higher latitudes, which can be considered a special case of the temperature-size rule, which predicts an increase in body size at lower temperatures (Angilletta et al., 2004). While such patterns have been well documented (**?**), the underlying mechanisms might not be the same across all taxa and require further investigation (Smith and Lyons, 2009).

2.2 Maximum body size - Megafauna

In many taxa a right-skewed body size distribution is observed, which means that smaller body sizes are more abundant than large ones (Blackburn and Gaston, 1994; Kozlowski and Gawelczyk, 2002; Lyons and Smith, 2008). This raises the question of why organisms are a certain size, if there is an optimal body size for each organisms, why some species attain larger sizes than others and which structural, physical and physiological properties determine and limit minimum or maximum body size (Smith and Lyons, 2009). A large body size is associated with certain advantages, e. g. decreased predation risk, higher fasting endurance, higher competitive ability, all of which results in a higher fitness (**?**). On the other hand, there are some disadvantages to having a larger body size since usually a larger range size and more resources are needed and generation times are often longer (**?**). In the history of Earth, animals have repeat-

edly attained very large body sizes, although patterns of when and how often maximum body size is achieved are inconsistent across time and different animal groups (Smith et al., 2016). Some famous examples of giant forms are the large insects from the Carboniferous/Permian period, the giant non-avian dinosaurs from the Jurassic/Triassic, the giant mammals from the Quatenary or today's largest animal, the blue whale (**?**). Animals with a body mass exceeding 44 kg (or sometimes 10 kg; Sandom et al., 2014) are referred to as megafauna (Barnosky, 2004; Rhodin et al., 2015). It has been suggested, that large animals are more prone to extinction than smaller ones (**?**). Reasons for this may be that large species usually need more resources, have a larger range and longer generation times (**?**). During the Quaternary, a huge number of large mammals which were considered megafauna went extinct (**?**). A number of causes for these extinction events have been discussed, but while a meteorite and disease were dismissed as possible causes due to lack of evidence (**?**), two possible scenarios are still under discussion: climate change and anthropogenic influence (**?**). Some recent studies suggest that human influence has been the main driver of these extinctions of mammalian megafauna (Barnosky, 2004; Gibbons, 2004; Sandom et al., 2014; Schuster and Schüle, 2000).

While the mammalian megafauna as well as their extinction have been well investigated, the herpetofauna has also lost a considerable number of species during the Quaternary (Blain et al., 2016). For example, many turtle and tortoise species have gone extinct, among those quite a few large species which can also be considered megafauna (Froyd et al., 2014; Pedrono et al., 2013; Rhodin et al., 2015). In former times, giant tortoises were abundant on the continents as well as on many islands, whereas today giant tortoises are present only on two island regions in the tropics (**?**) .

2.3 Giant Tortoises - Testudinidae

In the fossil record two clades of terrestrial tortoises have been identified, which both contained giant forms. One is the family Meiolaniidae, which occurred exclusively in Argentina, Australia and its surrounding Islands and is completely extinct nowadays (**??**). The other is the family Testudinidae, which comprises all extant terrestrial tortoises as well as many extinct or fossil taxa (**?**). The testudinids included giant forms and occurred on all continents but Australia (**?**). Testudinidae have been known in the fossil record from the Eocene onwards, the earliest fossils being *Hadrianus* which are known from North America and Europe and probably originated in Asia (**?**). Body size played an important role in the earlier times of testudinid taxonomy (**?**).

In the beginning, all tortoise fossils were assigned to the genus Testudo, but around the 20th century(??), tortoises were grouped into two clades based on body size. Large taxa were all assigned to the genus *Geochelone*, while small tortoises were assigned to *Testudo*. Eventually, over the past few decades, the taxonomy has been revised for many regions, based on morphological and biogeographical clues (**?**). In the Americas, all tortoises are now referred to as either *Hesperotestudo*, *Gopherus* or *Chelonoidis*, the latter contains all extant Galapagos giant tortoises (**?**). In Europe, the genus *Cheirogaster* has been introduced but is currently being replaced by *Titanochelon*, although not all species have been revised accordingly yet (**?**). Small species still belong to *Testudo*, which contains the extant *Testudo graeca*-group (**?**). In Asia and Africa, the two current biodiversity hotspots for turtles and tortoises in general (**?**), many different taxa have now been differentiated (**?**). In Asia, the genera *Geochelone*, *Indotestudo* and *Manouria* are present (**?**). On mainland Africa there are seven extant genera: *Homopus*, *Psammobates*, *Kinixys*, *Malacochersus*, *Chersina*, *Stigmochelys* and *Centrochelys*, the latter consisting of one species, *Centrochelys sulcata*, which is the largest extant continental tortoise with a carapace length of about 80 cm (**?**). In the West Indian Islands (Madagascar, Seychelles, Aldabra etc.), there are three extant gerena, *Astrochelys*, *Pyxis* and the giant *Aldabrachelys*, as well as the extinct *Cylindraspis* (**?**).

On the contintents as well as remote islands giant tortoises exceeding carapace lengths of 2 m were abundant in former times and have frequently been found in fossil deposits (**?**). The presence of large tortoises on islands has been explained by their ability to float and to survive for months without water or food (Cheke et al., 2016; Gerlach et al., 2006; Patterson, 1973).

However, the abundance of giant tortoises on these remote oceanic islands along with their resilience and survivability without resources made them a very attractive food item for humans, especially in the whaling industry (**?**). In addition to the exploitation of giant tortoises on islands, both small and large tortoises and turtles were also frequently eaten on the mainland (**?**). Tortoises are easily captured, do not need a great amount of preparation before they can be cooked and can even be kept as a "staple" since they stay alive for quite a while withoud food or water (Thompson and Withers, 2003; Thompson and Henshilwood, 2014). Intensive hunting and exploitation has been suggested to affect tortoise body size (**?**) since larger individuals are more easily visible and yield more meat, they are more prone to exploitation than small ones (Rhodin et al., 2015). This may have lead to a decreased body size within a tortoise population, where tortoise consumption is common. For this reason, tortoise body size has

even been suggested as a proxy for human population size in some areas (Steele and Klein, 2005; **?**; **?**). To this day, turtles and tortoises are still being eaten in some countries, although many are endangered (**?**). Apart from anthropogenic influences, climate probably also affected tortoises (**?**). As ectotherms, turtles and tortoises are inherently more dependent on climate than endotherms (**?**). Especially large tortoises are very temperature-sensitive due to their unique physiology and morphology (**??**). In the fossil record, large tortoises are considered to be an indicator for mild winters (Hibbard, 1960; Schleich, 1981), since they are thought to not have been able to dig themselves burrows for hibernation like modern *Gopherus* tortoises do (?? only in some places, I guess?)(**??**). Additionally, giant tortoises run a high risk of overheating and display behavioral thermoregulation to keep their body temperature below a dangerous or even lethal value (Schleich, 1981; **?**). It has not been concluded with certainty, if anthropogenic influence or climate change or a mixture of both have caused the extinction of giant tortoises(Rhodin et al., 2015).

2.4 Aim of this work

The aim of this work is to identify general body size distributions in tortoises (Testudinidae) on a global scale across the last 20 million years. Further, to investigate the general evolutionary mode of body size in testudinidae. Apart from that, focusing on giant tortoises, which were abundant in former times, but are extinct nowadays apart from a few remaining populations on tropical islands, to discuss where and when they occurred in the fossil record and which underlying reasons for the extinction of many giant forms have been stated in the literature. Understanding how and why giant tortoises went extinct in the past, can hold valuable information for conservation work today. Many tortoise species are endangered and extinction rates have been especially high for insular species since the Pleistocene (Rhodin et al., 2015).

The development of body size or any other trait over time can follow different evolutionary trajectories, that describe general trends of trait evolution. If a trait does not significantly change, this observation is described as stasis. If a trait does change, this change can either be directional, referred to as a generalized random walk, or non-directional, which is described as an unbiased random walk. Recently, new analytical tools have been developed, to be able to determine which evolutionary model fits the development of a trait, for example size trends, best over time (Hunt, 2006; Hunt et al., 2015). Changes in body size on the clade level can either be due to selective forces acting on the whole clade (trends) or individual species being influ-

enced by different causes (tendencies) (Hunt, 2006). A trend can be an increase or decrease in minimum, mean or maximum size and can be caused by differing speciation and extinction rates and therefore occur independently of tendencies (Smith et al., 2016). Maximum size, for example, is usually expected to increase without being selected for (Smith et al., 2016).

3 Material & Methods

3.1 Data collection

I collected data on body size of fossil testudinids from the Miocene until recent times. The body size data set includes 26 fossil genera, comprising over 100 fossil species. The majority of the data was obtained from the primary literature (Table S12). To find relevant publications, I relied mostly on the references listed in the FosFarBase (Böhme and Ilg, 2003), the Paleobiology Database (http://paleobiodb.org), and the review on fossil turtles and tortoises by Rhodin et al. (2015). Furthermore, the FosFarBase provided fossil occurrences of testudinids all over the world, including their exact localities and age (Table S14). The FosFarBase (http://www.wahre-staerke.com/, last accessed 23.03.2017) contained 769 testudinid occurrences from 647 localities between the Eocene (33.9 - 56 mya) and the Holocene (0.0117 - 0 mya) (Fig. 1). Of those, 641 occurrences from 534 localities were of relevant age (Miocene to Holocene, 23.03 - 0 mya). However, although the FosFarBase already contained a lot of fossil occurrences, the literature review showed that additonal data not recorded in the FosFarBase was readily available in the existing literature. The final body size data set includes 376 data records from 193 localities, of which 106 localities are present in the FosFarBase.

For extant testudinid taxa, I measured dry material (n = 67) from the collection of the Museum für Naturkunde zu Berlin (MfN) with an accuracy of the first decimal (unless stated otherwise) using calipers. In addition, body size data (n = 173) from the literature was included (Table S13).

3.2 Body size estimation

Body size is reported as straight carapace length (SCL) in mm. When SCL for fossil taxa was not available from the primary literature, it was estimated (n = 254) either from plastron length (PL) or appendicular elements (Table S12). For carapace length estimations based on plastron length, the measurements from the MFN collection material were used to calculate the ratio between SCL and PL. Since the SC/PL ratio did not show a significant difference among species (Kruskal Wallis Test, $P > 0.05$; SCL/PL between 0.95 - 1.47), a single general ratio (SCL/PL = 1.1) was calculated for all testudinids and hence used for the SCL estimations unless stated otherwise (Table S12). For estimations based on femora and humeri, ratios based on data provided by Hutterer et al. (1998) and Franz et al. (2001a), respectively, were used. A

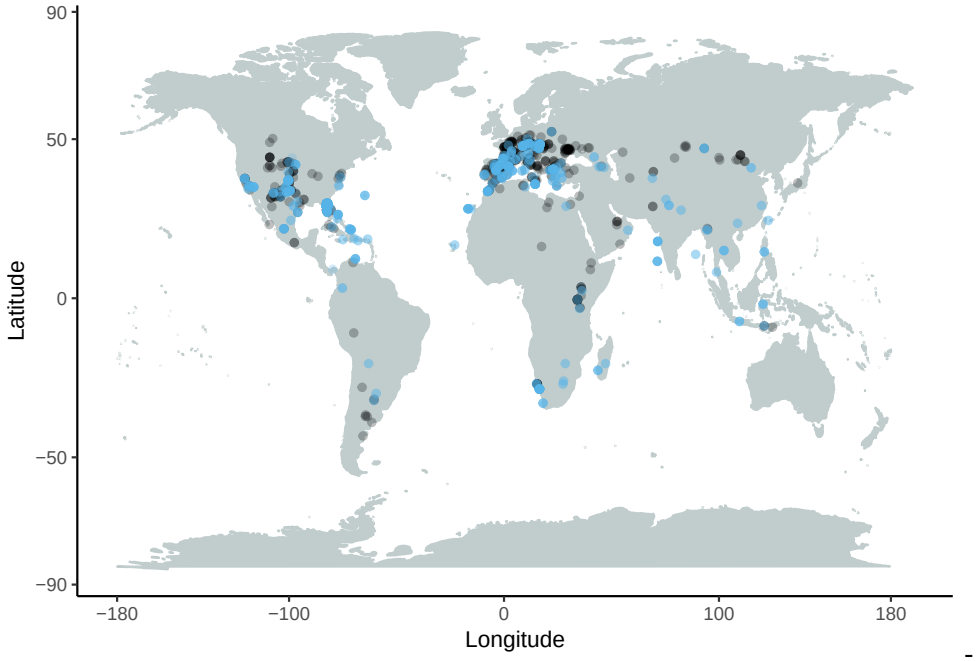


Figure 1: Map displaying fossil occurrences of Testudinidae from the Eocene to the Holocene across the world. Body size data was available for 106 localities from the Miocene until the Holocene (blue circles). The other localities (black circles) which are listed in the FosFarBase were either older or there was no body size data available for them. Testudinidae are frequently recovered in the fossil records of Europe and North America.

number of publications did not state measurements but instead provided scaled figures of the fossil remains, from which either SCL directly or PL, humeri, or femora lengths for estimating SCL could be measured.

3.3 Analyses

All subsequent analyses were performed with R 3.4.1 (R Core Team, 2017), including the packages `dplyr` (Wickham et al., 2017) to prepare the data for the analysis and `ggplot2` (Wickham, 2009) to create figures. The R package `vegan` (Oksanen et al., 2017) was used to create randomized sample-based accumulation curves, which show the increase in individuals, species or genera per sampling unit and are therefore used to determine if sampling is sufficient or not in terms of covering diversity and richness (Thompson and Withers, 2003). Most commonly these accumulation curves are conducted at the species level, but they can also be applied to higher taxa like families and genera (Gotelli and Colwell, 2011, 2001). The accumulation curves also give information about species richness, relative abundance and diversity (Thompson and Withers, 2003). Typically a species accumulation curve shows a steep initial slope followed by

a gradual flattening until converging to an asymptote, when the maximum number of species has been reached. However, this shape can be affected in several ways, for example when a lot of rare species opposed to only a few abundant species are present or if sampling is conducted on a large geographical scale, the transition between the initial slope and the following flatter slope of the curve may be lower and the slope towards the asymptote may be rather long or an asymptote may not be reached at all within figure margins (Gotelli and Colwell, 2011, 2001). Since the data set in this study relies on literature, references were used as a sampling unit (x-axis). Sampling accumulation curves were created both at the species and the genus level, since genera of fossil testudinids are relatively well resolved whereas determination on the species level is still obscure in some cases, because fossil species are frequently based on single individuals that are often incompletely preserved as well (Brattstrom, 1961; de Lapparent de Broin, 2001). Since genera were better sampled than species (Fig. 3, S2 (a) - (b)), all subsequent analyses were performed on the generic level. Additional sampling accumulation curves for the continents were created (Fig. S2 (c) - (i)), to check if subsequent analyses could be applied to these subgroups.

3.3.1 Descriptive statistics

To explore the structure of the data set normalized histograms with density curves and boxplots of the entire data set and several subgroups (fossil vs. modern, insular vs. continental) were created. Descriptive statistics like mean, median, variance, skewness and kurtosis were calculated with the R package `moments` (Komsta and Novomestky, 2015) (Table S11) for the raw and log-transformed data. Data transformations are often conducted, to achieve normality. (??)

While mean, median and variance describe the location and distribution of a data set, skewness and kurtosis are referred to as 'shape statistics', which give information about symmetry (skewness) and the weight of the tails compared to the rest of the distribution, i. e. outliers will results in a higher kurtosis. However, the accuracy and suitability of these shape statistics has been debated, since sample size, extreme values and homogeneity of the data impact their results and uncertainties are higher than when mean and median are used (Bai and Ng, 2005; McNeese, 2016). Especially for small sample sizes, the histograms might provide more reliable information about the structure of the data set than skewness and kurtosis (McNeese, 2016).

The Wilcoxon Rank Sum Test (unpaired data) was used to test for differences in body size between modern and fossil taxa as well as between insular and continental taxa. To be able to

compare different subgroups, a random subsample (1000 repeats) of the respective larger subgroup was taken to compare equal sample sizes. For the majority of random subsamples, the median coincided with the real median (see Appendix D), therefore subsamples were assumed to reflect the actual sample and subsequently used for statistical comparisons. The Kruskal-Wallis test was used to test for differences among subsamples, e. g. body size per time bin and body size per continent. As post-hoc test, a multiple comparison (Siegel and Castellan, 1988) was conducted to identify which groups differed significantly from each other.

3.3.2 Body size trends over time

To investigate trends in body size over time, the R package `paleoTS` (Hunt, 2015) was used. Data were split into time bins according to stratigraphic stages (Table 1, Fig. 2), with the exception of the two lower stages of the Miocene, which were considered as one time bin, because the last bin otherwise would have contained only 2 data records. Bins were chosen accordingly, to ensure a decent sample size in each bin and because an exact dating was not available for all localities, but often only a rough estimate of the stratigrahic stage. To prevent sampling bias and because sampling accumulation curves showed that the genus level was better sampled than the species level, the mean SCL per genus was calculated before summarising mean SCL per time bin for the timescale analysis. The paleoTS plots display the mean trait over time and can be fitted to different evolutionary models: stasis, where the trait mean fluctuates around a steady mean (no change), generalized random walk (GRW), where the trait mean increases or decreases over time (directional change) or unbiased random walk (URW), where the trait mean changes over time but not in a way where these changes accumulate and move the trait mean in a specific direction (non-directional change). Model fits are based on maximum-likelihood estimation and model support is reported as Akaike Information Criterion (AICc), with the lowest values indicating the best suited model. Additionally, Akaike weights are reported, which give the proportional support for each model. paleoTS plots and model-fitting was performed for the entire data set, continental, and insular genera subsets. The same approach was repeated for European and Eurasian genera for all data, as well as continental and insular genera separately.

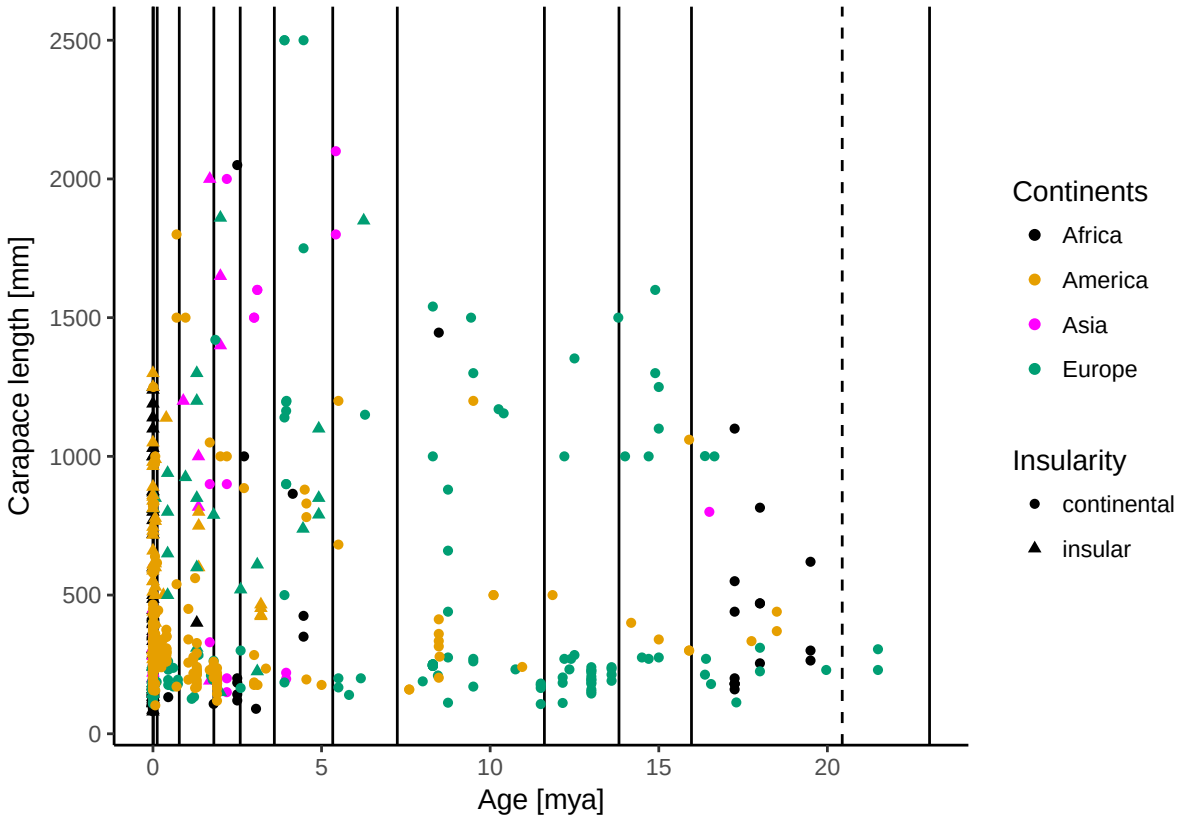


Figure 2: Carapace length plotted over time, indicating insular (triangle) and continental (circles) and colour indicating continents. Straight lines indicate stratigraphic stages which were used as time bins, the dashed line indicates the border between the two stages of the Lower Miocene, which were consideres as one time bin. The largest testudinids recorded occur in the Pliocene of continental Europe.

Table 1: Time ranges, mean age per bin, corresponding stratigraphic stages and epochs, and respective sample sizes (on individual, species and genus level). Apart from the modern samples, which include all extant genera, the Lower Pleistocene contains the highest sample size.)

Age Range [mya]	Mean Age [mya]	Stages	Epochs	n (Individuals)	n (Species)	n (Genera)
0 - 0.0117	0.00585	Modern	Modern	254	66	18
0.0117 - 0.126	0.06885	Upper Pleistocene	Upper Pleistocene	50	18	8
0.126 - 0.781	0.45350	Middle Pleistocene	Middle Pleistocene	53	13	7
0.781 - 1.81	1.29350	Lower Pleistocene	Lower Pleistocene	57	27	12
1.81 - 2.59	2.19700	Gelasian	Lower Pleistocene	33	15	9
2.59 - 3.6	3.09400	Piacencian	Upper Pliocene	24	15	10
3.6 - 5.33	4.46600	Zanclean	Lower Pliocene	31	17	8
5.33 - 7.25	6.28900	Messinian	Upper Miocene	12	9	6
7.25 - 11.6	9.42700	Tortonian	Upper Miocene	46	20	9
11.6 - 13.8	12.71400	Serravallian	Middle Miocene	27	8	6
13.8 - 16	14.89500	Langhian	Middle Miocene	18	14	9
16 - 23	19.50000	Burdigalian/Aquitanian	Lower Miocene	31	15	9

4 Results

4.1 Sample-based accumulation curves

The sample-based accumulation curve (SAC) on the generic level shows a relatively low intial slope and a long upward slope to the asymptote, which does not reach full saturation (Fig. 3). In contrast, the species accumulation curves, both per reference and per locality, show only a slight initial increase and, for the same number of references/sampling units, are far from reaching an asymptote (Fig. S2 (a), (b)). Accumulation curves for individual continents show that Europe reflects the trend of the overall dataset, with a long upward slope after the inflection point, whereas the other continents require further sampling (Fig. S2 (c) - (i)). For this reason, the timescale analysis was only conducted for Europe and Eurasia, but not for the other continents.

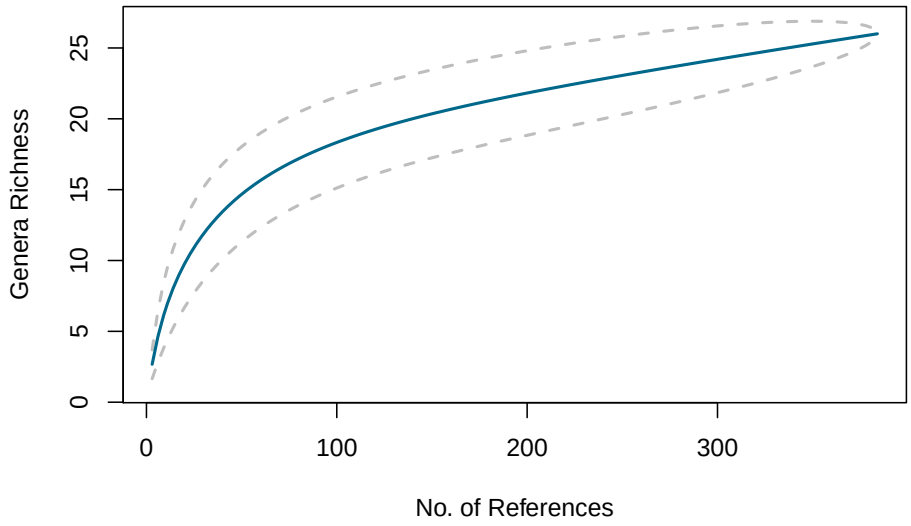


Figure 3: Sample-based accumulation curve of fossil genera per reference. Dashed lines represent the confidence inteval.

4.2 Descriptive statistics

The histograms indicate that testudinid body size is not normally distributed (Fig. 4), which is supported by QQ-Plots for raw as well as log-transformed data (Fig. S3).

The body size distribution is moderately right-skewed (Table S11), with a higher frequency of

smaller body sizes. Body size ranges from a minimum of 80 mm to a maximum of 2500 mm for the entire data set. When comparing body sizes on a temporal scale, the minimum body size per stratigraphic stages excluding modern taxa ranges from 90 mm to 270 mm, while the maximum 1100 mm to 2500 mm. The highest maximum body size was observed in the fossil record from continental Europe (CL = 2500 mm).

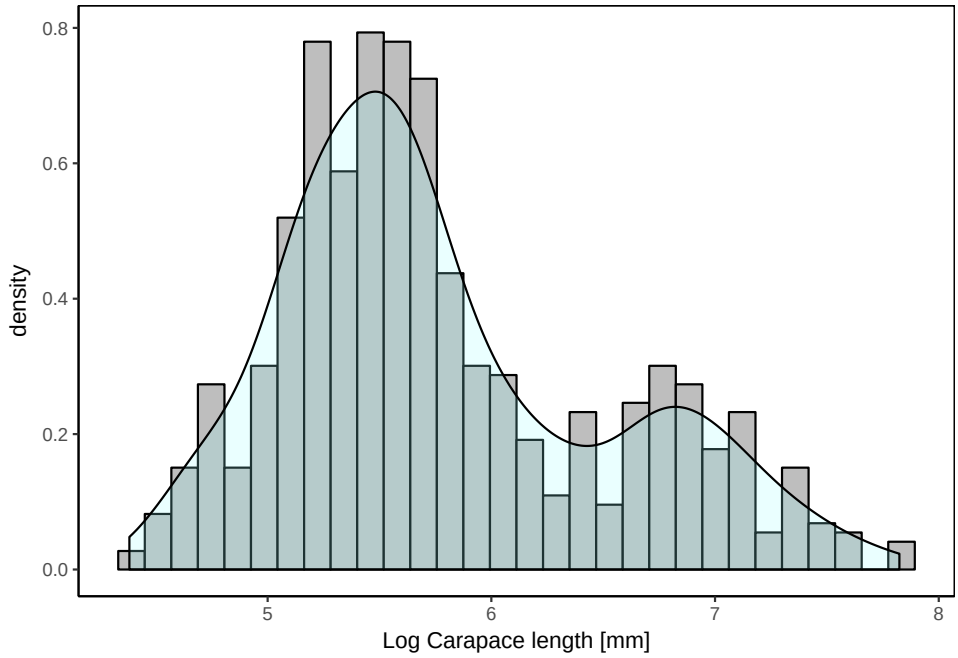
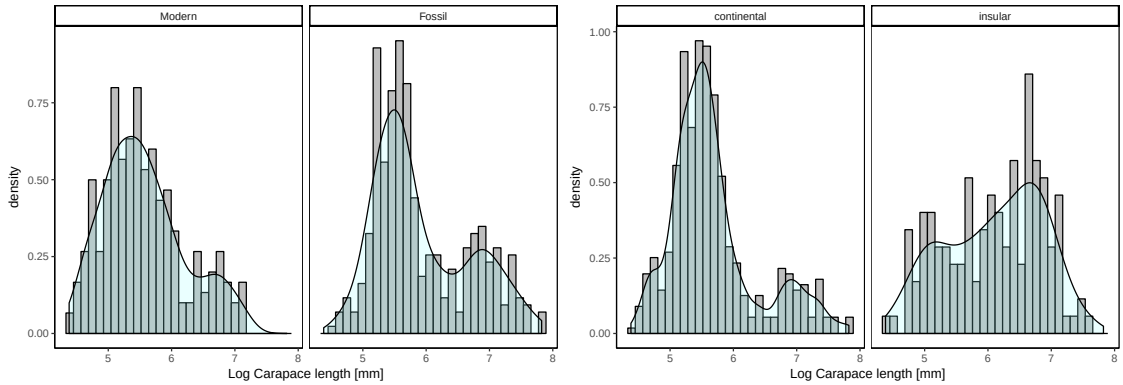


Figure 4: Body size distribution of complete data set. The data is bimodally distributed and right-skewed.

This pattern is also apparent when splitting the data set into fossil and modern taxa (Fig. 5 (a)). Considering insularity, body size distribution is right-skewed for continental taxa, but left-skewed for insular species, meaning larger body size is more frequent than smaller body size on islands. Insular taxa are also left-skewed when only considering fossil taxa, but modern insular taxa have a skewness close to 0, indicating a symmetric distribution (Table S11). Kurtosis suggests light tails with no/few outliers (kurtosis < 3) for insular and modern insular species, whereas continental species have a heavy tail (kurtosis > 3; Table S11).

The histograms show a bimodal distribution, wich is also apparent on most sublevels, except for modern insular species (Fig. S4 (a)). Body size distributions are similar, right-skewed and bimodal, for the four continents and reflect the overall trend (Fig. S4 (b)).



(a) Fossil vs. modern (b) Continental vs. insular

Figure 5: Comparison of body size distributions of modern vs. fossil and continental vs. insular data. All distributions are bimodal. Fossil, modern and continental subgroups are right-skewed whereas the distribution of insular data is left-skewed.

Mean body size differs significantly across time bins (Kruskal Wallis Test, χ^2 = 71.441, P < 0.01; Fig. 6). The multiple comparison test showed that modern median body size is smaller than body size in the Upper Pleistocene. There is no difference in body size within the Pleistocene and Pleistocene body size does not differ from body size in the Upper Miocene. Serravallian body size is smaller than Langhian body size in the Middle Miocene, but Langhian body size is not different from Lower Miocene body size.

Comparison of modern and fossil testudinids showed that modern tortoises are significantly smaller than fossil ones (Wilcoxon Rank Sum Test, W = 22318, P < 0.01; Fig. 7). Furthermore, continental testudinids are significantly smaller than insular taxa (Wilcoxon Rank Sum Test, W = 13854, P < 0.01; Fig. 7).

These results can even be considered in combination: modern continental taxa are smaller than fossil continental taxa (Wilcoxon Rank Sum Test, W = 8046, P < 0.01; Fig. 8) and modern insular taxa are smaller than fossil insular taxa (Wilcoxon Rank Sum Test, W = 631.5, P < 0.01; Fig. 8))

Finally, body size differs among continents (Kruskal Wallis Test, χ^2 = 34.343, P < 0.01; Fig. 9). The multiple comparison test showed that African testudinids differ significantly from the other three continents in body size. American testudinid body size is comparable to that of Asia, but differs from those of Africa and Europe. Furthermore, Asian and European testidinids are similar in body size.

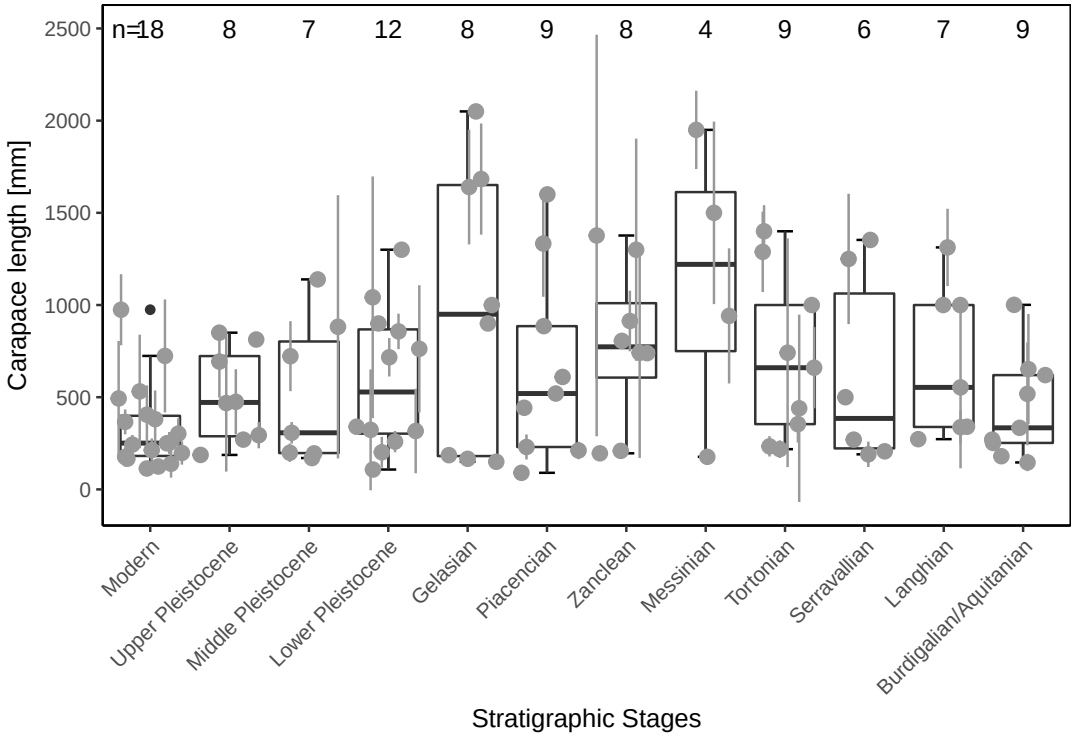
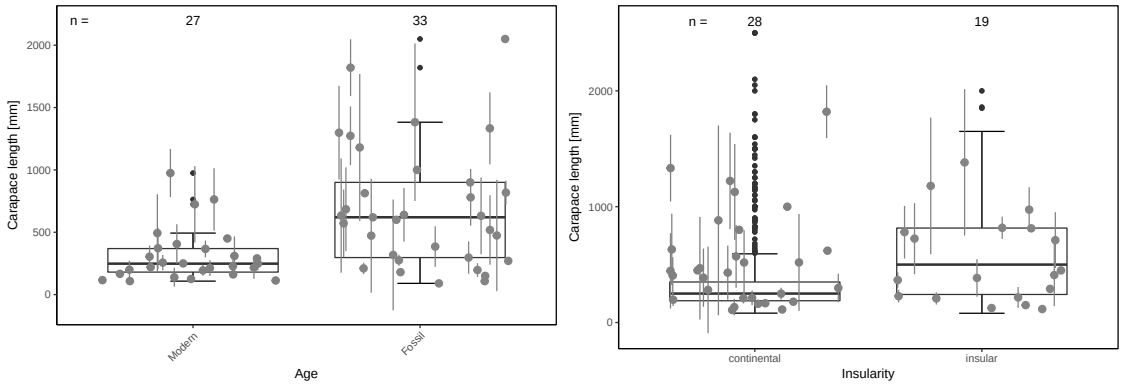


Figure 6: Comparison of carapace length across all time bins. Bold lines indicate medians, boxes indicate lower and upper quartiles, whiskers indicate largest and smallest observations and outliers represent extreme values. Numbers refer to number of genera per time bin. The mean carapace lengths per genera are depicted as grey circles with errorbars indicating the respective standard deviation. Smallest average carapace length and variance is found in modern testudinids.



(a) Modern testudinids have a smaller average carapace length and variance than their fossil counterparts.

(b) Continental Testudinidae have a larger average carapace length and variance than insular testudinids

Figure 7: Comparison of carapace length between (a) fossil and modern as well as (b) continental and insular testudinids. Bold lines indicate medians, boxes indicate lower and upper quartiles, whiskers indicate largest and smallest observations and outliers represent extreme values. Numbers refer to number of genera per time bin. The mean carapace lengths per genera are depicted as grey circles with errorbars indicating the respective standard deviation.

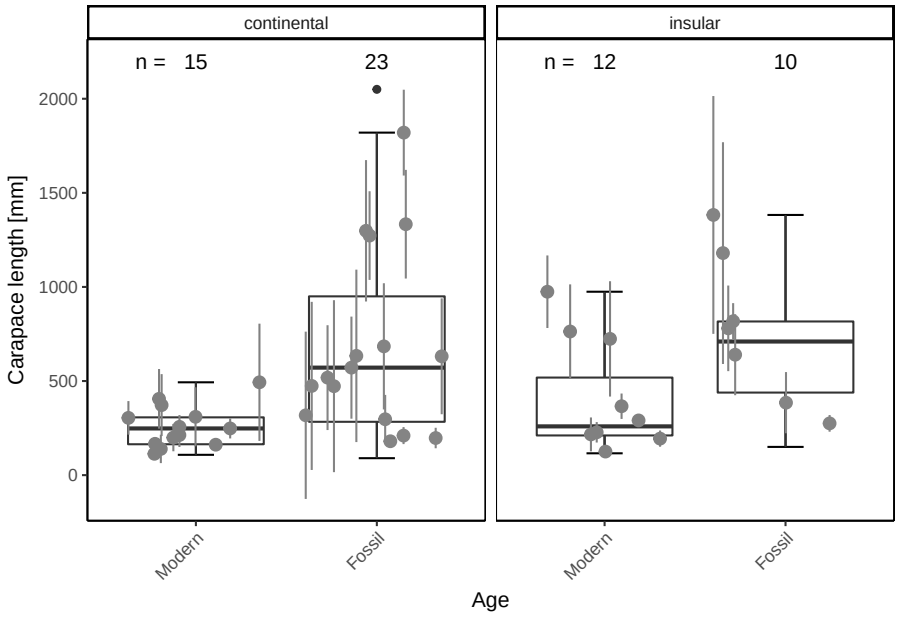


Figure 8: Boxplots fossil vs. modern, continental vs. insular species. Comparison of carapace length among continental and insular Testudinidae of different age. Bold lines indicate medians, boxes indicate lower and upper quartiles, whiskers indicate largest and smallest observations and outliers represent extreme values. Numbers refer to number of genera per time bin. The mean carapace lengths per genera are depicted as grey circles with errorbars indicating the respective standard deviation. Modern testudinids are smaller than fossil ones both on continents and on islands.

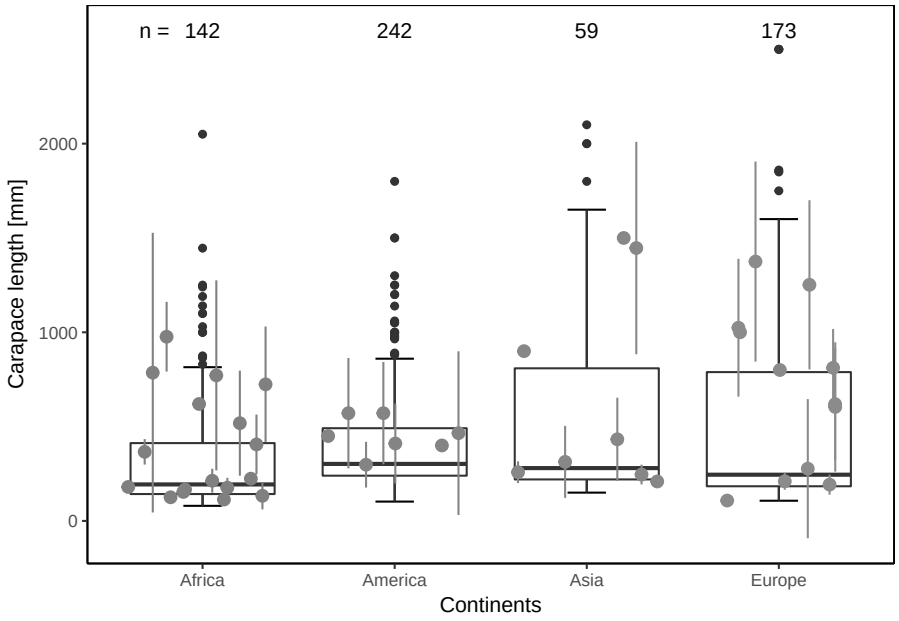


Figure 9: Comparison of testudinid carapace length among continents. Bold lines indicate medians, boxes indicate lower and upper quartiles, whiskers indicate largest and smallest observations and outliers represent extreme values. Numbers refer to number of genera per time bin. The mean carapace lengths per genera are depicted as grey circles with errorbars indicating the respective standard deviation. African testudinids have the smallest average carapace length compared to the other continents.

4.3 paleoTS analysis

4.3.1 complete dataset

How mean body size progresses over time is similar for the complete data set as well as continental and insular subgroups. All show peaks in the Upper Miocene and Lower Pleistocene and dip during the Pliocene. However, the decline in body size is very pronounced for continental testudinids, whereas body size only slowly decreases on islands. All three data sets also show a very sharp decline in the youngest time bin. For the complete data set as well as the continental one, body size seems to increase constantly during the Miocene. For the insular data set, the Upper Miocene is the starting point for the analysis, but mean carapace length is even larger than on continents. The model fittings showed that stasis is best supported for both the complete and the insular data set. However, while is very well supported for insular testudinids (100 %), the model support for the complete data set is rather weak (50 %). In conrast, on continents an unbiased random walk is the best supported model, but also with only a rather weak support.

Fitting of the three evolutionary models favoured stasis for the entire data set, although model support was only 51 % followed by 33 % support for the unbiased random walk (Fig. 10, Table 2). When solely considering continental genera, the best-fitting model was the unbiased random walk, but again not ideally supported with 55 % followed by a modest model support of 30 % for generalized random walk (Fig. 11, Table 5). In contrast, insular genera are best described by stasis, which was very well supported (100 %; Fig. 12, Table 7)).

Table 2: PaleoTS object of the complete data set. Mean Age (tt), sample size (nn), mean carapace lengths (mm) and variance (vv) are shown. Largest mean carapace length occurs in the Upper Miocene, followed by the Lower Pleistocene.

tt	nn	mm	vv
0.00585	22	330.1456	50307.87
0.06885	8	506.3265	64620.11
0.45350	7	516.4053	155241.85
1.29350	12	593.8669	147507.20
2.19700	8	971.8850	580540.76
3.09400	9	658.0826	271043.73

tt	nn	mm	vv
4.46600	8	785.0792	187937.61
6.28900	4	1141.9375	584378.85
9.42700	9	703.9570	195766.19
12.71400	6	628.3020	285258.36
14.89500	7	687.9619	169914.58
19.50000	9	441.5420	78467.65

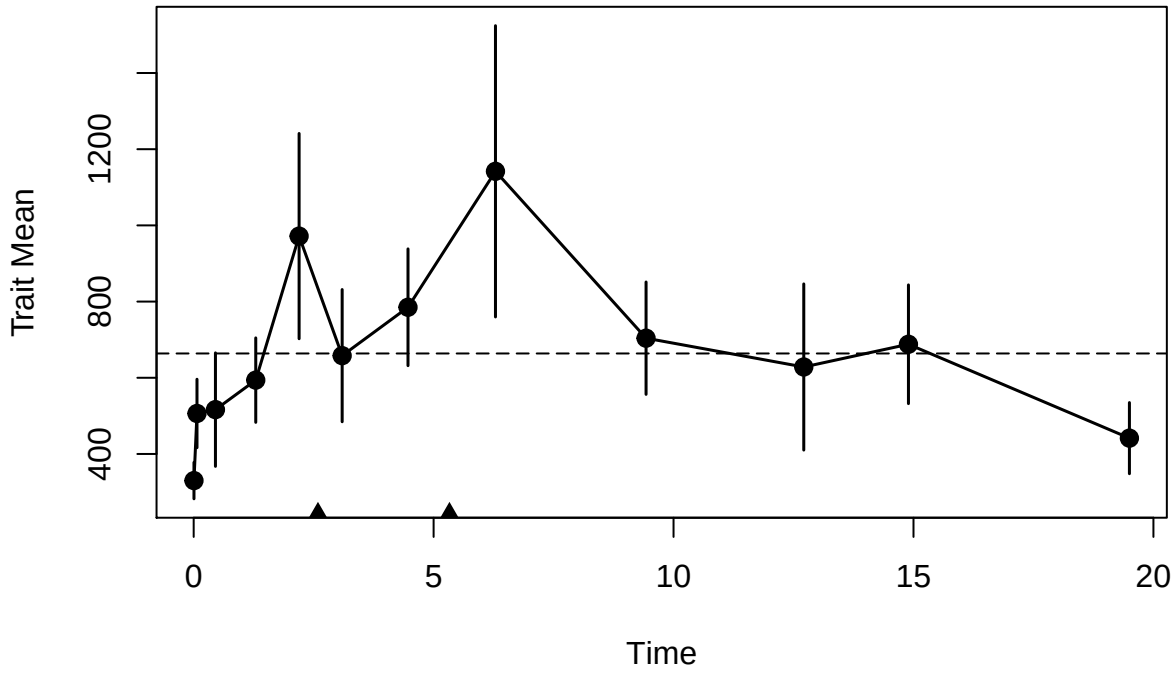


Figure 10: Evolutionary trajectory of Testudinidae body size. Bars respresent standard errors of mean. The dashed line depicts the mean carapace length averaged across all time bins. The triangles indicate the Pleistocene/Pliocene and Pliocene/Miocene borders, respectively. Body size seems to continuously increase until the Upper Miocene, dip and go back up again in the Pliocene and steadily drop with onset of the Pleistocene.

Table 3: Model-fitting results for the complete data set. Stasis is the best although not very strongly supported model, followed by URW.

	logL	K	AICc	Akaike.wt
GRW	-81.31790	2	167.9691	0.161
URW	-82.05721	1	166.5144	0.332
Stasis	-80.16802	2	165.6694	0.507

4.3.2 continental dataset (excluding insular species)

Table 4: PaleoTS object of the continental data set. Mean Age (tt), sample size (nn), mean carapace lengths (mm) and variance (vv) are shown. Largest mean carapace length occurs in the Lower Pleistocene, followed closely by the Upper Miocene.

tt	nn	mm	vv
0.00585	18	240.3544	11701.08
0.06885	6	397.4606	50619.39
0.45350	5	416.9341	200982.12
1.29350	7	346.8484	66240.07
2.19700	7	1103.1067	595507.93
3.09400	6	725.4156	414253.29
4.46600	6	771.3833	259173.08
6.28900	4	1054.4375	531455.93
9.42700	9	703.9570	195766.19
12.71400	6	628.3020	285258.36
14.89500	7	687.9619	169914.58
19.50000	9	441.5420	78467.65

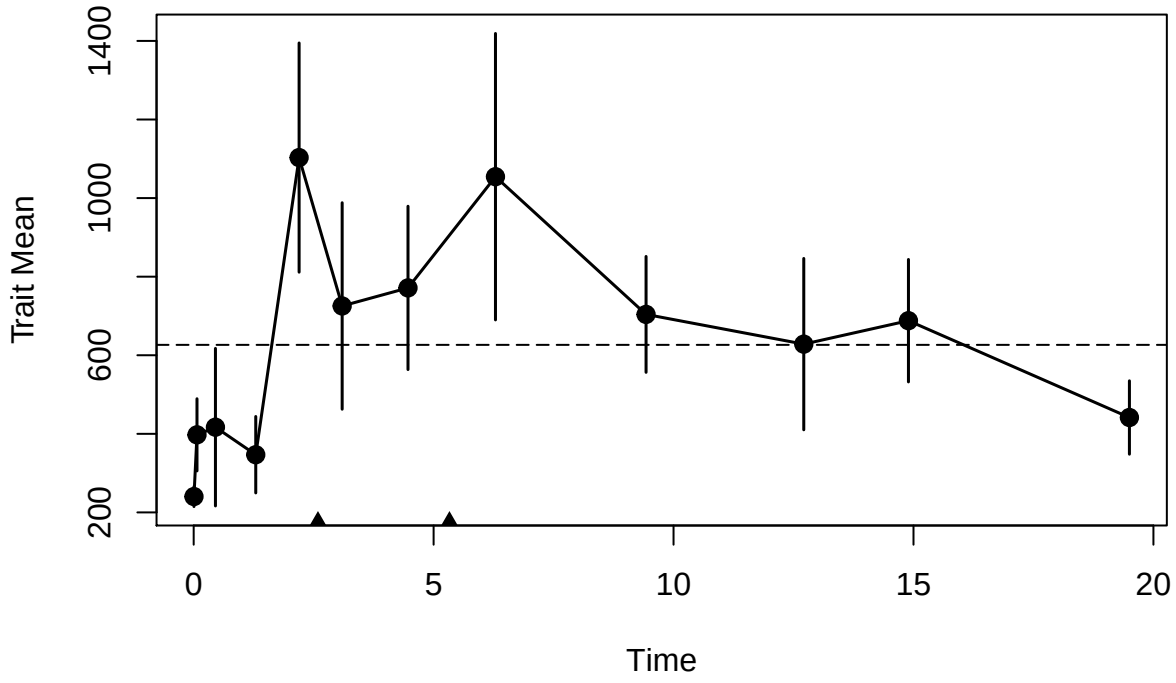


Figure 11: Evolutionary trajectory of Testudinidae body size on the continents. Bars respresent standard errors of mean. The dashed line depicts the mean carapace length averaged across all time bins. The triangles indicate the Pleistocene/Pliocene and Pliocene/Miocene borders, respectively. Body size seems to increase until the Upper Miocene, dip and go back up again in the Pliocene and steadily drop with onset of the Pleistocene.

Table 5: Model-fitting results for the continental data set. URW is the best although not very strongly supported model, followed by GRW.

	logL	K	AICc	Akaike.wt
GRW	-82.26287	2	169.8591	0.300
URW	-83.12577	1	168.6515	0.548
Stasis	-82.93984	2	171.2130	0.152

4.3.3 insular dataset (excluding continental)

Table 6: PaleoTS object of the insular data set. Mean Age (tt), sample size (nn), mean carapace lengths (mm) and variance (vv) are shown. First records are from the Upper Miocene, where the largest mean carapace length occurs, followed by the Lower Pleistocene.

tt	nn	mm	vv
0.00585	13	416.5655	80682.22
0.06885	4	727.5938	14997.58
0.45350	3	748.8333	142649.08
1.29350	6	829.6744	112964.44
2.19700	3	1178.3333	821158.33
3.09400	4	449.4375	27058.77
4.46600	2	826.1667	15196.06
6.28900	1	1850.0000	0.00

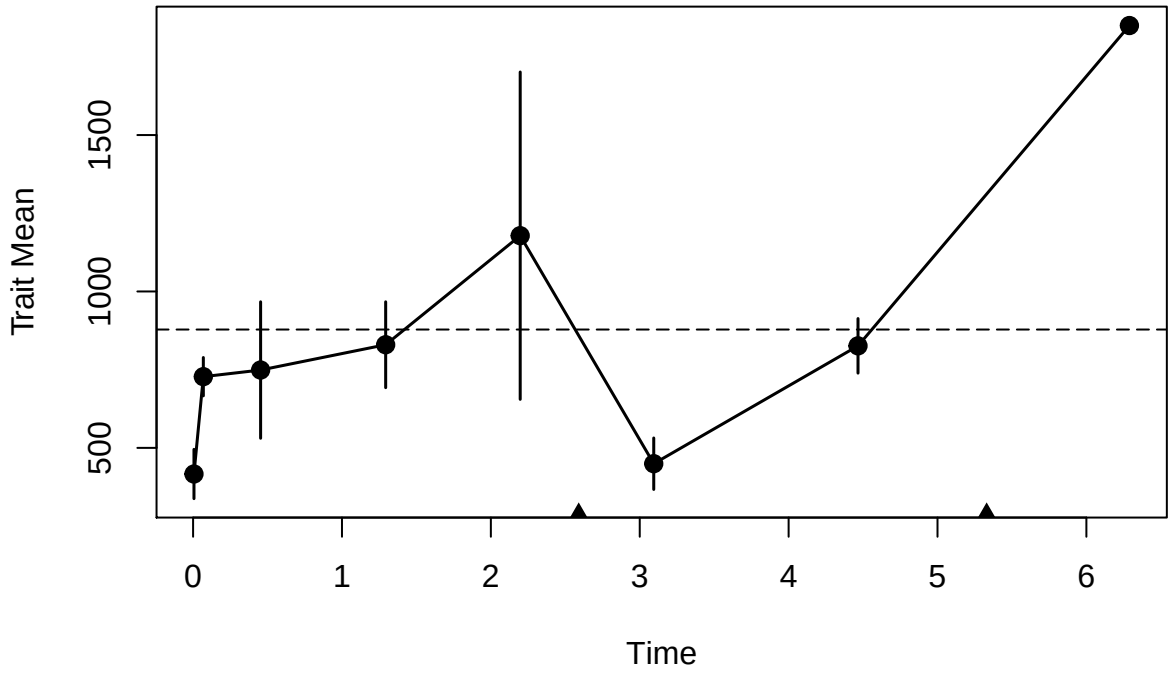


Figure 12: Evolutionary trajectory of Testudinidae body size on islands. Bars respresent standard errors of mean. The dashed line depicts the mean carapace length averaged across all time bins. The triangles indicate the Pleistocene/Pliocene and Pliocene/Miocene borders, respectively. Body size decreases during the Pliocene and goes back up again in the Lower Pleistocene, then drops slowly until it declines sharply in the Holocene.

Table 7: Model-fitting results for the insular data set. Stasis is the best supported model.

	logL	K	AICc	Akaike.wt
GRW	-68.57344	2	143.5469	0
URW	-75.76576	1	154.1982	0
Stasis	-60.41581	2	127.2316	1

4.3.4 per continent

4.3.4.1 Europe, genera

When repeating the analysis for European taxa only, all three groups – complete, continental and insular data – are best described by stasis with a model support between 92 - 99 % (Fig. 13, S7, S8; Tables 9, S2, S4).

Table 8: PaleoTS object of European testudinids. Mean Age (tt), sample size (nn), mean carapace lengths (mm) and variance (vv) are shown. Largest mean carapace length occurs in the Lower Pliocene.

tt	nn	mm	vv
0.00585	2	148.8559	3338.406
0.06885	3	616.6667	138802.333
0.45350	3	377.8167	89203.953
1.29350	5	697.3717	218431.974
2.19700	2	895.0000	1110050.000
3.09400	3	453.3333	39433.333
4.46600	5	1215.8667	159317.256
6.28900	2	838.3750	875495.281
9.42700	6	800.0508	263434.389
12.71400	5	653.9625	351634.528
14.89500	5	772.0000	223154.375
19.50000	5	533.8533	183706.682

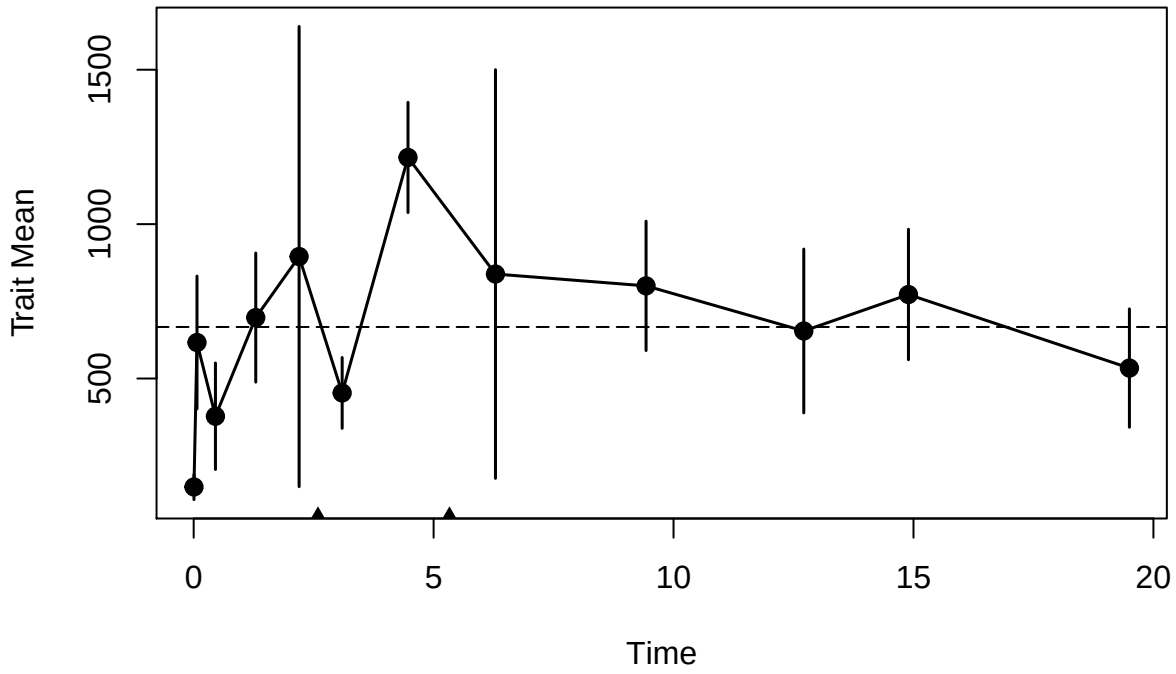


Figure 13: Evolutionary trajectory of Testudinidae body size in Europe. Bars respresent standard errors of mean. The dashed line depicts the mean carapace length averaged across all time bins. The triangles indicate the Pleistocene/Pliocene and Pliocene/Miocene borders, respectively. Body size seems to increase until the Lower Pliocene and generally decline afterwards. However, body size shows two slight peaks, one at the beginnign and one at the end of the Pleistocene.

Table 9: Model-fitting results for European testudinids. Stasis is the best supported model.

	logL	K	AICc	Akaike.wt
GRW	-84.14010	2	173.7802	0.006
URW	-85.90727	1	174.2590	0.005
Stasis	-79.01365	2	163.5273	0.990

4.3.4.2 Eurasia, genera

For Eurasia, the complete data set (Fig. 11, Table 14) and insular taxa are best described by stasis (Fig. S10, Table S8), with higher model supports than for the complete data set. Continental taxa are best described by an unbiased random walk (Fig. S9, Table S6), which

reflects the results for the complete data set, although model support for Eurasian continental taxxa is even higher.

Table 10: PaleoTS object of the Eurasian testudinids. Mean Age (tt), sample size (nn), mean carapace lengths (mm) and variance (vv) are shown. Largest mean carapace length occurs from the Upper Miocene to the Lower Pliocene.

tt	nn	mm	vv
0.00585	6	210.8687	10460.89
0.06885	4	530.0000	122579.33
0.45350	3	377.8167	89203.95
1.29350	7	777.5579	162641.14
2.19700	5	909.6667	562217.22
3.09400	5	892.0000	381770.00
4.46600	6	1048.0556	296417.22
6.28900	3	1208.9167	849651.02
9.42700	6	800.0508	263434.39
12.71400	5	653.9625	351634.53
14.89500	5	772.0000	223154.38
19.50000	5	513.8533	162399.35

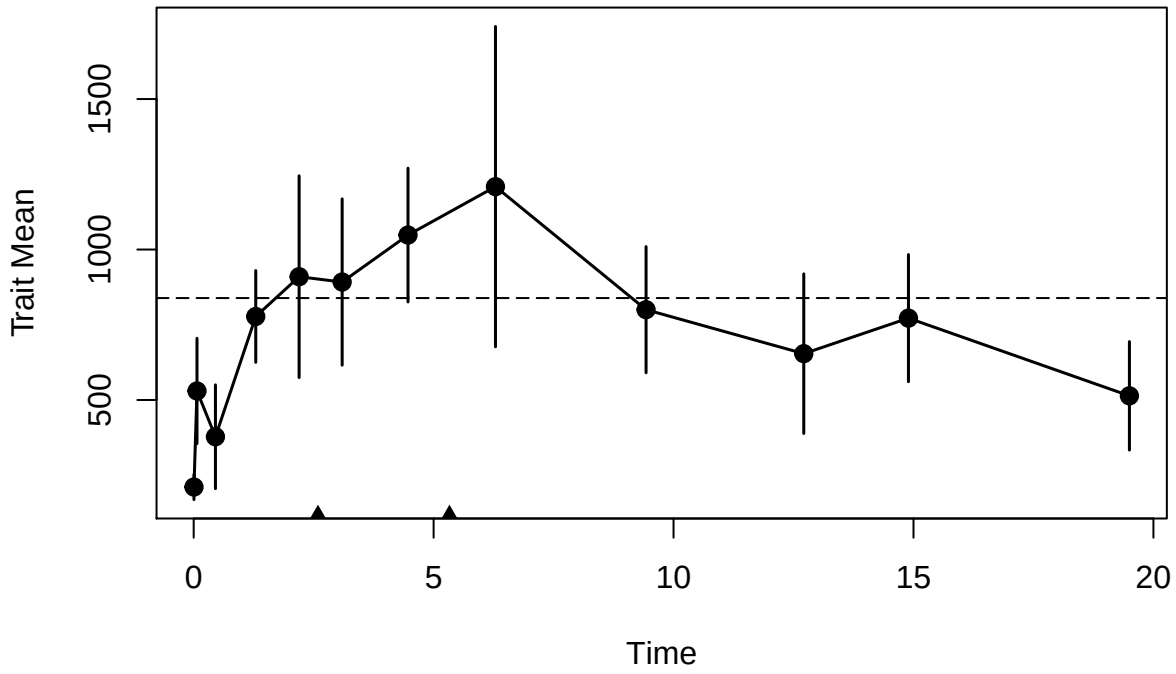


Figure 14: Evolutionary trajectory of Testudinidae body size in Eurasia. Bars respresent standard errors of mean. The dashed line depicts the mean carapace length averaged across all time bins. The triangles indicate the Pleistocene/Pliocene and Pliocene/Miocene borders, respectively. Body size seems to increase until the Upper Miocene and then decline continuously with only one slight peak during the Upper Pleistocene.

Table 11: Model-fitting results for Eurasian testudinids. Stasis is the best supported model.

	logL	K	AICc	Akaike.wt
GRW	-78.25066	2	162.0013	0.039
URW	-78.39530	1	159.2350	0.154
Stasis	-75.21099	2	155.9220	0.807

5 Discussion

5.1 Data coverage

The sample-based accumulation curve shows that the body size data set covers the generic level well, but not the species level. Since there are less genera than species, it is to be expected that genera reach an asymptote earlier than species (Gotelli and Colwell, 2001). Although the accumulation curve for the entire data set does not completely plateau, considering the large area covered (Thompson and Withers, 2003) and the high number of rare genera in the dataset, it can be considered well enough sampled for the present study (Gotelli and Colwell, 2001). Conducting the rest of the analyses on the generic level is advantage ous here, because many fossils cannot be identified at the species level and species that are rare in the fossil record may not reflect their actual abundance, since only a small number of individuals are actually preserved (Jass et al., 2014). According to Rhodin et al. (2015) 121 species of testudinidae have been recognized in the fossil record since the beginning of the Pleistocene. For 117 species from that time period, body size data could be obtained for this study, therefore it can be assumed, that the data set sufficiently resembles the actual fossil record of testudinidae on a global scale. For smaller-scale analyses, for example, on individual continents, further body size data should be collected.

5.2 Distribution of testudinid body size

Distribution of testudinid body size is rather uniform across a spatial and temporal scale. The body size distribution is right-skewed on a large scale, as well as for modern, fossil and continental species, which has been reported frequently for animal body size distributions (Kozlowski and Gawelczyk, 2002; **?**). Only insular taxa show a body size distribution that is skewed to the left, with a higher frequency of larger-bodied species. This left-skewed distribution is largely driven by fossil insular species, as modern insular species are not skewed and show a rather flat, symmetrical distribution. The bimodality of the overall body size distribution and the consistency across the continents is similar to what Lyons and Smith (2008) report for Quaternary mammals. However, since tortoise body size is only sampled well enough for Europe and Eurasia, these results have to be considered with caution. When looking at continental tortoises on a temporal scale, the second mode of large body sizes disappears for modern tortoises, which is probably due to the extinction of large continental taxa, similar to what has been observed in

the mammalian megafauna during the Quaternary (Lyons and Smith, 2008). For insular species the bimodal body size distribution is constant over time, which could be expected, since large insular forms are still present, in spite of their diminished diversity and abundance compared to former times (Rhodin et al., 2015). Whether or not these results can be considered as complying the island rule, depends on the biogeographic history of giant tortoises and whether they evolved to be large on islands or prior to island colonizations. Many authors agree that tortoises were already large when they colonized the islands (Caccone et al., 1999; Cheke et al., 2016; Gerlach et al., 2006; Itescu et al., 2014), which would contradict the island rule, as has also been argued in a large-scale study on the intra-specific, inter-specific as well as on the clade level (Itescu et al., 2014). Modern tortoises are smaller-bodied than their fossil conspecifics, which coincides with earlier findings for animals in general (**?**) and reptiles as a clade (Smith et al., 2016).

5.3 Time-scale analysis

The time scale analysis showed that overall there is no change in testudinid body size. However, if only considering continental taxa, unbiased random walk is the favoured model, which is a special case of directional evolution, where the probability of descendants being larger or smaller than their ancestors is the same. This change is most likely due to the extinction of the giant continental forms, which is also apparent in the frequency curves. For insular species, however, stasis is again the favoured evolutionary model, which seems plausible since there still are giant forms on islands today. Also, model support is the highest for insular species, fitting only stasis. On a continental level, for Europe stasis fits best for the complete data set as well as for continental and insular species. Eurasia, however, reflects the overall trend, with body size of continental genera being best described by a unbiased random walk, although model support is weaker than for Europe. Yet, all model supports for Eurasia (complete, continental and insular) are better than for the overall data set and the continetal taxa, which suggest that Eurasia somehow drives this trend. It would be interesting to see which model fits best, if more Asian samples were being included.

In the literature, stasis is often encountered in large-scale analysis (Hunt, 2006, 2007; Hunt et al., 2015; Smith et al., 2016). On a broad scale, stasis may be favoured when evolutionary changes are too small to be noted (Hunt et al., 2015). Unbiased random walk has also been reported for several animal groups at the clade leven (Smith et al., 2016). The unbiased

random walk for continental testudinids is certainly influenced by the complete loss of giant forms in recent times. Additionaly, tendencies towards smaller body size has been suggested for certain tortoise species (Franz and Quitmyer Irvy, 2005; Klein and Cruz-Uribe, 2000; Speth and Tchernov, 2002; Steele and Klein, 2005). That stasis is the favoured model for insular taxa as well as insular and continental taxa combined, although modern tortoises have significantly smaller body sizes compared to fossil tortoises, might be because the range of body sizes is still considerably large for insular taxa, whereas the range of body sizes in extant continental taxa is profoundly smaller than for fossil continental taxa. Therefore, the within-lineage tendencies towards smaller body size might not be visible as a trend at the clade level as long as body size range does not decrease significantly.

5.4 Causes for extinction

There are numerous accounts of tortoise exploitation by humans from all over the world (Archer et al., 2014; Avery et al., 2004; Blasco, 2008; Blasco et al., 2011, 2016; Franz et al., 2001b; Karl, 2012; Mudar and Anderson, 2007; Munro and Grosman, 2010; Peres and Nascimento, 2006; Pritchard, 2013; Sampson, 2000, 1998; Speth and Tchernov, 2002; Steadman et al., 2017; Thompson and Henshilwood, 2014) and extinction patterns in tortoises are associated with the spread of hominin and humans, for example that they reached islands later, which is why many large island species were overexploited leading to their extinction during the Holocene (Rhodin et al., 2015). In many archeological sites where tortoise remains are found, cut or burn marks are visible, indicating human consumption (**?**). But besides direct anthropogenic threats like hunting, human presence was associated with issues like habitat fragmentation or, especially on islands, introduced predators or competitors which may have further accelerated tortoise extinction (**?**). Tortoises are frequently found associated with proboscideans (Hooijer, 1951; Vlachos and Tsoukala, 2014), which were found to have been overexploited by humans and only able to survive in regions inaccessible to humans (Surovell et al., 2005). The significant decrease in tortoise body size that was observed in this study also coincides with the time of human spread and may be comparable to the exploitation of the mammalian megfauna, for which human influence has been suggested to be the main cause (Barnosky, 2004; Sandom et al., 2014). Further, for the other group of terrestrial tortoises, the Australian Meiolaniidae, evidence suggests that human exploitation lead to their extinction (**?**). However, there are also records of mass mortalities of giant insular tortoises in Mauritius and Réunion, before humans

had reached the islands (Cheke et al., 2016). Moreover, there are still extant species that have been heavily exploited, which did not lead to their extinction but instead to a decrease in body size (Steele and Klein, 2005; **?**). Still, the literature suggests that human overexploitation is likely to have caused many tortoise extinction, possibly in conjunction with climate change (**?**).

Giant tortoises seem to occupy only a small temperature range, since they are in danger of overheating (**?**), but also seem to be unable to cope with cold winters (Hibbard, 1960). However, since they are currently still present on some islands, climatic conditions seem to be suitable. Climate change might have indirectly influenced tortoise populations through altered vegetation cover, which serves as a source of shade and food for tortoises (Cheke et al., 2016; Hunter et al., 2013; Schleich, 1981).

5.5 Conclusion

The results suggest that the extinction of giant continental fossils accounts for differences in evolutionary patterns of continental and insular species. Loss of biodiversity is not reflected in these patterns, if the size range does not change significantly. The significant size difference between modern and fossil tortoises on a global scale and within-lineage tendencies are also not reflected as a trend in body size. Possible reasons for the extinction of giant tortoises are complex and require further investigation. On the one hand, direct and indirect anthropogenic influence is massive and may have affected tortoises in the same way as it affected the mammalian megafauna (Barnosky, 2004; Sandom et al., 2014). On the other hand, giant tortoises seem to be sensitive to their environment in terms of thermoregulation and climatic fluctuations might have affected tortoise populations (**?**).

This study would certainly benefit from further sampling, ideally by directly measuring fossil specimens from museum collections. With a larger data set, smaller-scale analyses could be conducted, for example for separate continents or individual lineages. It would also be interesting to include phylogenetic relationships, although many species and genera would have to be revisited and revised before a complete phylogeny can be created.

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Appendix A Geographical and stratigraphic distribution of body size data

Body size data was available from all four continents, were testudinidae occur, and over a time period of 20 mya (Fig. S1, Table 1).

–> samples all over the world and over the whole time period with more or less equally distributed sample sizes (over time bins, continents are uneven –> see SAC)

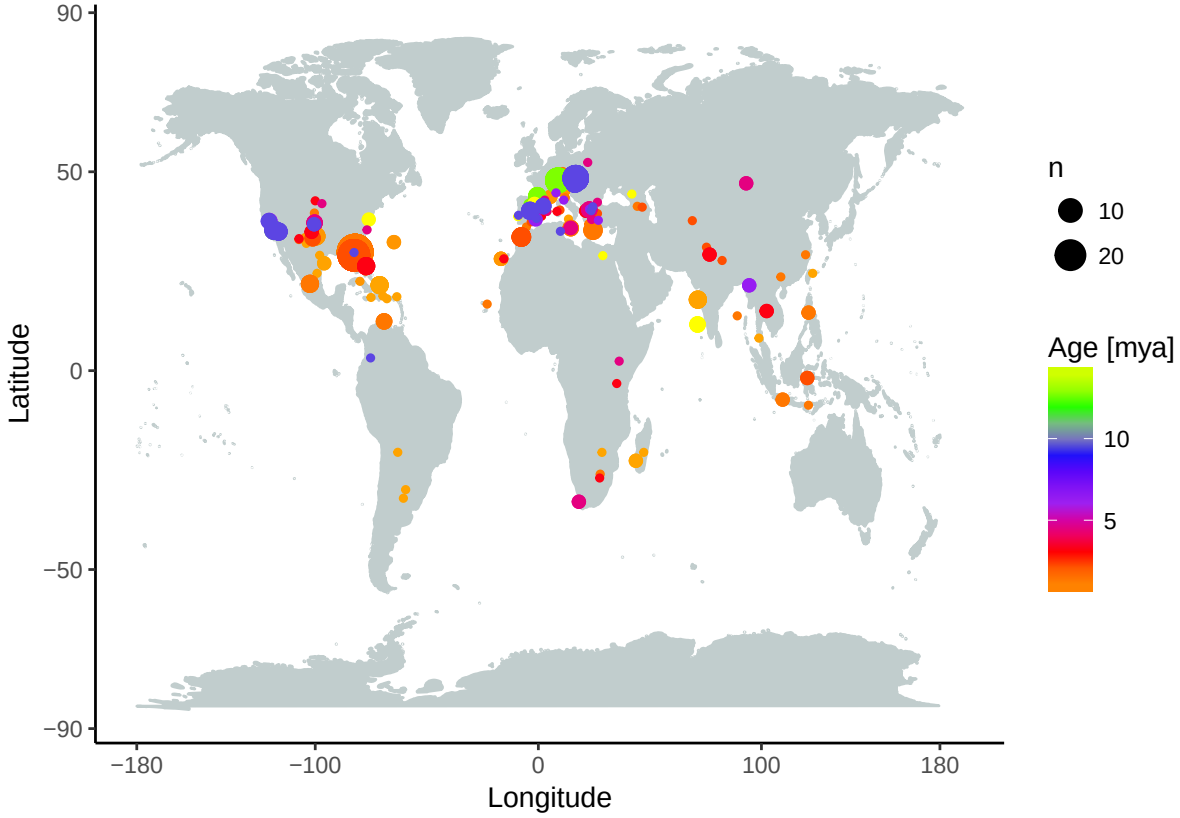
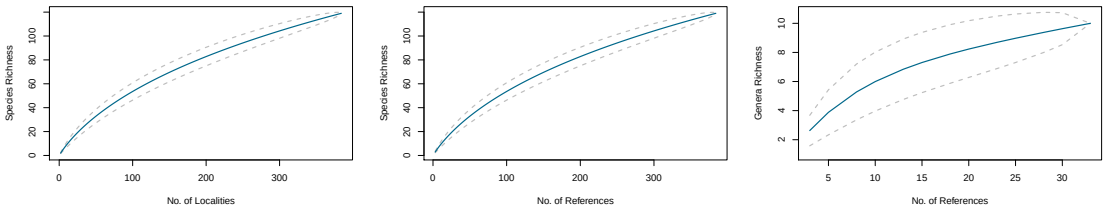
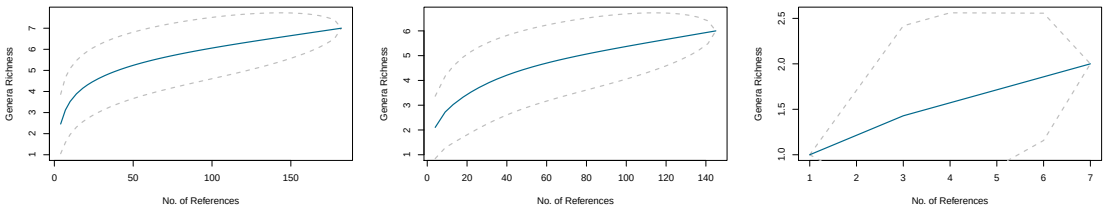


Figure S1: Map displaying all localities for which body size data for testudinids was available in the literature. Size of points denotes sample size, color denotes approximate age.

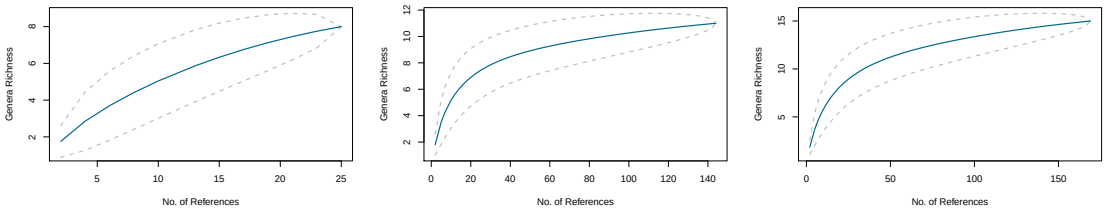
Appendix B Sampling accumulation curves



(a) Species per locality (b) Species per reference (c) Africa



(d) America (e) North America (f) South America

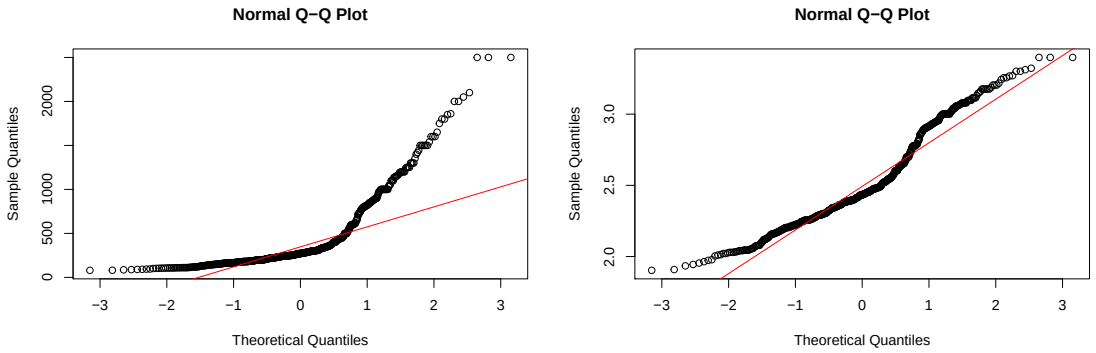


(g) Asia (h) Europe (i) Eurasia

Figure S2: Sampling accumulation curves: (a) - (b) Species are not sufficiently sampled, regardless of sampling unit. (c) - (i) Sampling Accumulation Curves on generic level per continent. Only Europe (h) and Eurasia (i) are sufficiently sampled. Dashed lines represent the confidence interval.

Appendix C Data structure

Normality test

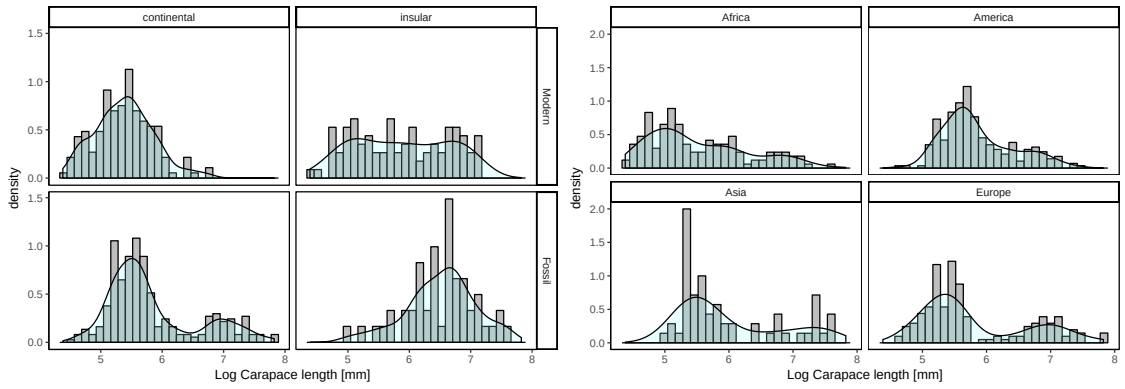


(a) Raw data

(b) Logtransformed data

Figure S3: Visual test for normal distribution. In case of normally distributed data, the black circles should follow the red line, which is not the case for either raw data (a) nor logtransformed data (b). Therefore, data is assumed to not be normally distributed and nonparametric test are used for all statistical analyses.

Body size distribution for subgroups

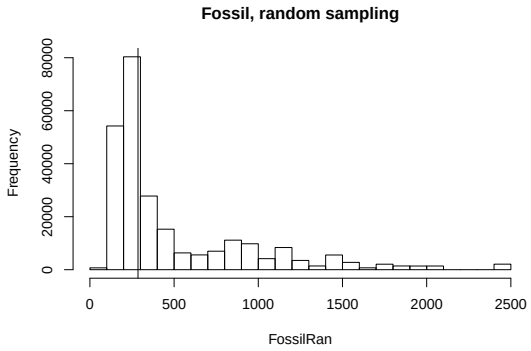


(a) Comparison of carapace length of modern and fossil continental/insular Testudinidae

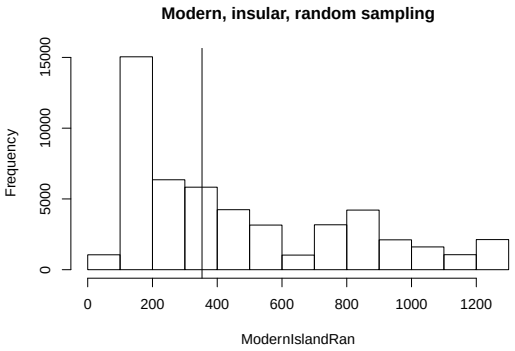
(b) Comparison of carapace length among continents

Figure S4: Body size distribution of subgroups. (a) Comparison of body size in modern continental and modern insular as well as fossil continental and fossil insular testudinids. Fossil continental testudinids reflect the bimodal distribution of the complete dataset, but large testudinids are missing in modern continental testudinids. Fossil insular testudinids are strongly left-skewed, whereas modern insular testudinids show a rather flat distribution. (b) Comparison of carapace length among continents. All continents roughly reflect the bimodal distribution of the complete dataset.

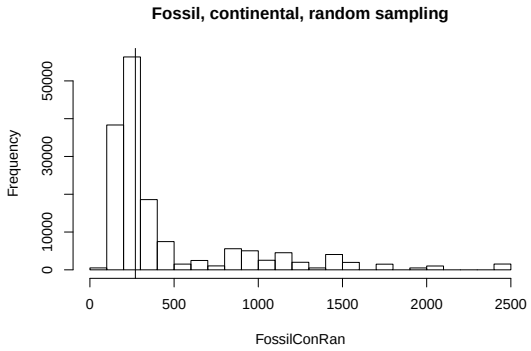
Appendix D Random Sampling



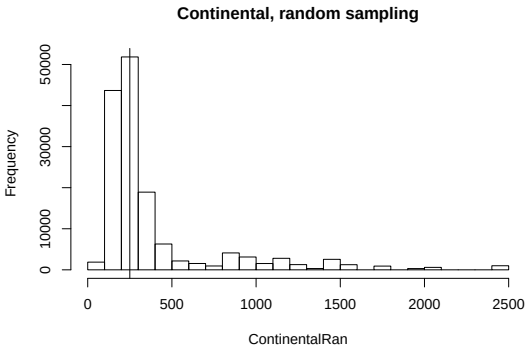
(a) Fossil



(b) Modern insular

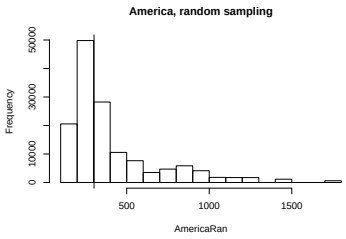


(c) Fossil continental

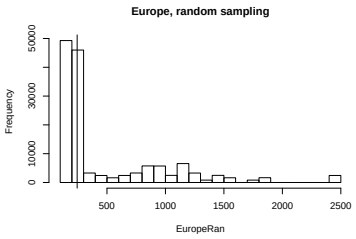


(d) Continental

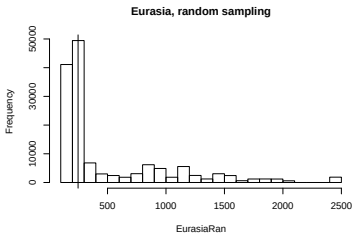
Figure S5: Random sampling for several subgroups. This was done to be able to do pair-wise comparisons of subgroups. Subsamples of the size of the respective larger sample were taken (1000 repeats). For (a), (c), and (d) the random sample reflects the real sample, for (b) this is not the case.



(a) America



(b) Europe



(c) Eurasia

Figure S6: Random sampling for different continents. All random samples reflect the real sample.

Appendix E paleoTS

Europe, genera, continental

Table S1: PaleoTS object of continental testudinids in Europe. Mean Age (tt), sample size (nn), mean carapace lengths (mm) and variance (vv) are shown. Largest mean carapace length occurs in the Lower Pliocene and Lower Pleistocene.

tt	nn	mm	vv
0.00585	2	149.5381	3450.8267
0.06885	1	187.0000	0.0000
0.45350	2	205.4750	198.0050
1.29350	2	204.9292	23.1767
2.19700	1	1420.0000	0.0000
3.09400	1	232.5000	0.0000
4.46600	3	1475.6667	57926.3333
6.28900	2	663.3750	473607.7812
9.42700	6	800.0508	263434.3893
12.71400	5	653.9625	351634.5281
14.89500	5	772.0000	223154.3750
19.50000	5	533.8533	183706.6821

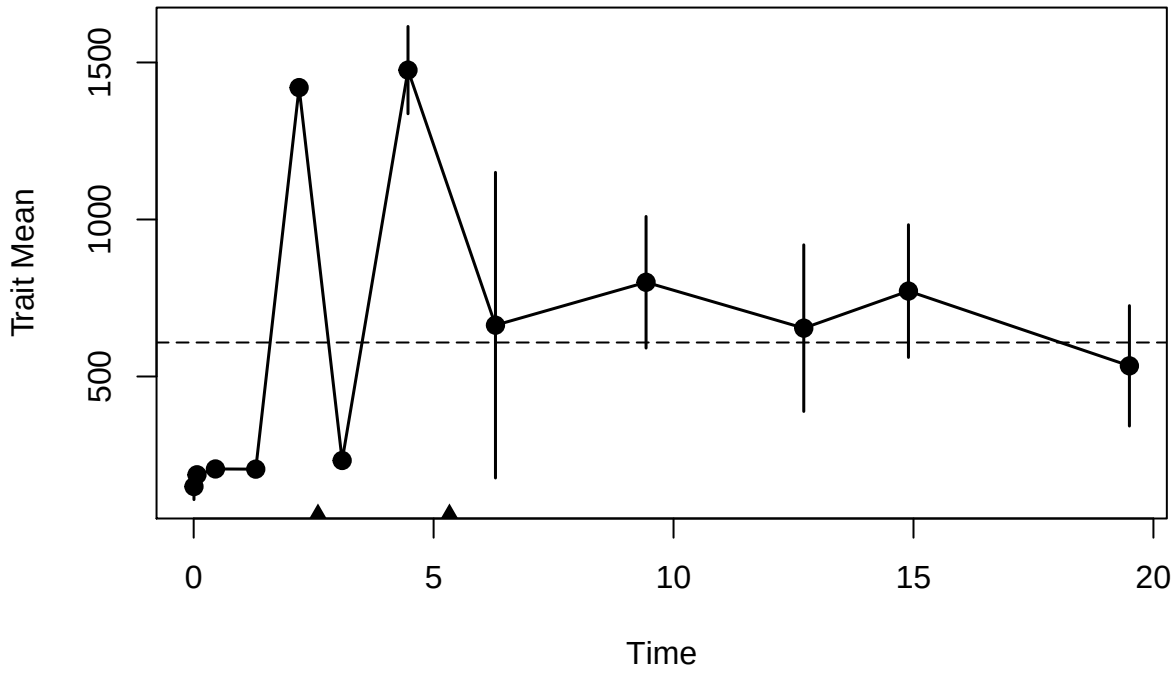


Figure S7: Evolutionary trajectory of Testudinidae body size on mainland Europe. Bars respresent standard errors of mean. The dashed line depicts the mean carapace length averaged across all time bins. The triangles indicate the Pleistocene/Pliocene and Pliocene/Miocene borders, respectively. Body size seems to remain largely unchanged during the Miocene, then fluctuate strongly during the Pliocene and drop sharply in the Pleistocene.

Table S2: Model-fitting results for continental testudinids in Europe. Stasis is the best supported model.

	logL	K	AICc	Akaike.wt
GRW	-87.93137	2	181.3627	0.009
URW	-92.56882	1	187.5821	0.000
Stasis	-83.21073	2	171.9215	0.991

Europe, genera, insular

Table S3: PaleoTS object of insular testudinids in Europe. Mean Age (tt), sample size (nn), mean carapace lengths (mm) and variance (vv) are shown. Largest mean carapace length occurs in the Upper Miocene.

tt	nn	mm	vv
0.00585	1	187.5077	0.00
0.06885	2	831.5000	684.50
0.45350	1	722.5000	0.00
1.29350	4	835.0833	168423.36
2.19700	2	1005.0000	1462050.00
3.09400	3	451.6667	40558.33
4.46600	2	826.1667	15196.06
6.28900	1	1850.0000	0.00

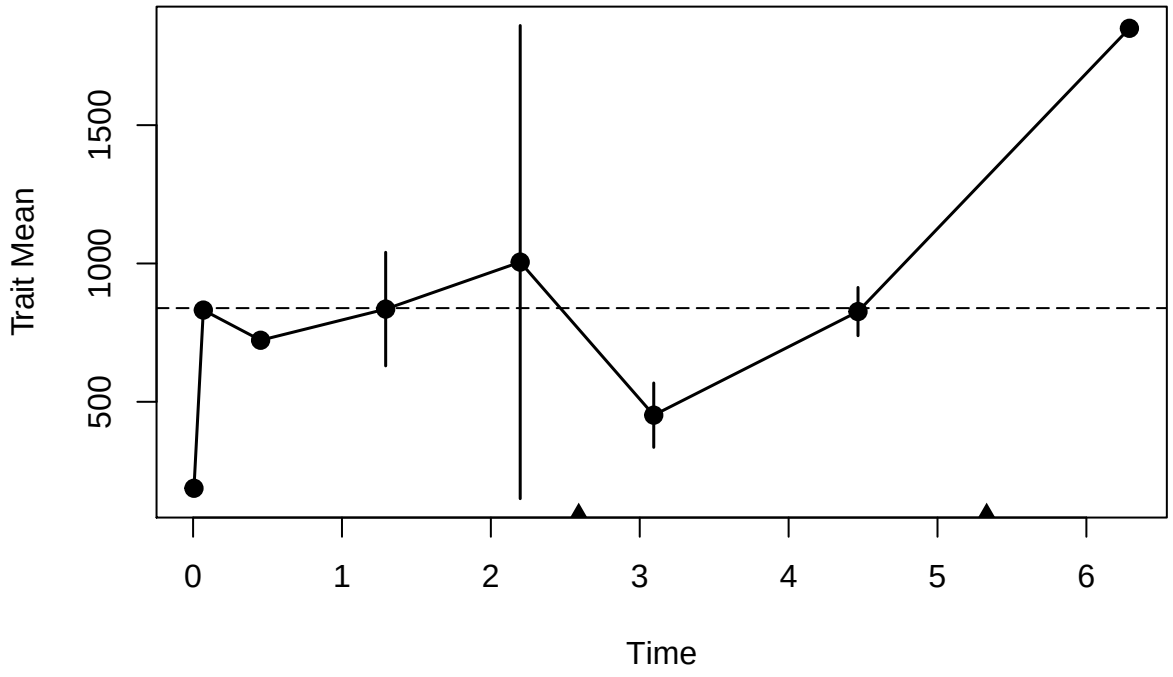


Figure S8: Evolutionary trajectory of Testudinidae body size on European islands. Bars represent standard errors of mean. The dashed line depicts the mean carapace length averaged across all time bins. The triangles indicate the Pleistocene/Pliocene and Pliocene/Miocene borders, respectively. Body size decreases starting from the Upper Miocene, increases slightly during the Pleistocene and then drops sharply during the Holocene.

Table S4: Model-fitting results for insular testudinids in Europe. Stasis is the best supported model.

	logL	K	AICc	Akaike.wt
GRW	-67.12192	2	141.2438	0.000
URW	-57.51634	1	117.8327	0.074
Stasis	-52.89638	2	112.7928	0.926

Eurasia, genera, continental

Table S5: PaleoTS object of continental testudinids in Eurasia. Mean Age (tt), sample size (nn), mean carapace lengths (mm) and variance (vv) are shown. Largest mean carapace length occurs in the Upper Miocene and throughout the Pliocene.

tt	nn	mm	vv
0.00585	6	210.6223	10502.932
0.06885	2	228.5000	3444.500
0.45350	2	205.4750	198.005
1.29350	4	595.5388	191487.404
2.19700	4	1044.5833	442006.250
3.09400	3	1110.8333	581102.083
4.46600	4	1159.0000	439728.667
6.28900	3	1092.2500	788605.188
9.42700	6	800.0508	263434.389
12.71400	5	653.9625	351634.528
14.89500	5	772.0000	223154.375
19.50000	5	513.8533	162399.349

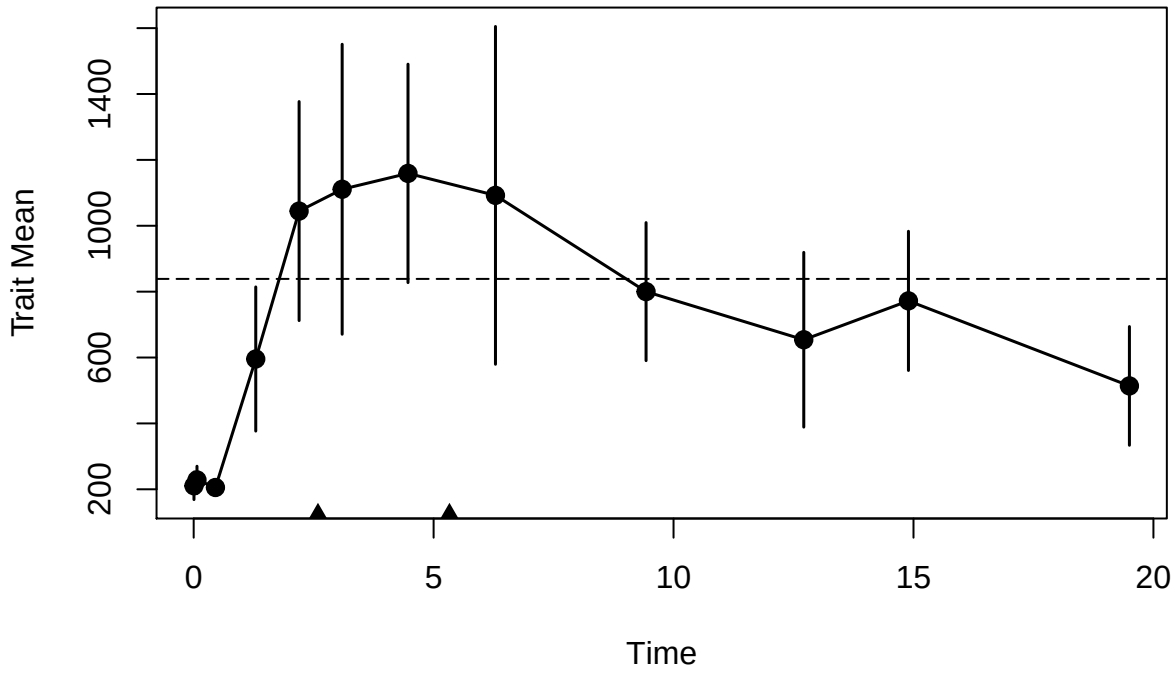


Figure S9: Evolutionary trajectory of Testudinidae body size on mainland Eurasia. Bars represent standard errors of mean. The dashed line depicts the mean carapace length averaged across all time bins. The triangles indicate the Pleistocene/Pliocene and Pliocene/Miocene borders, respectively. Body size seems to constantly increase during the Miocene, peak during the Pliocene and then steadilydecline during the Pleistocene.

Table S6: Model-fitting results for continental testudinids in Eurasia. URW is the best supported model.

	logL	K	AICc	Akaike.wt
GRW	-74.89025	2	155.2805	0.211
URW	-75.10165	1	152.6477	0.787
Stasis	-79.85118	2	165.2024	0.001

Eurasia, genera, insular

Table S7: PaleoTS object of insular testudinids in Eurasia. Mean Age (tt), sample size (nn), mean carapace lengths (mm) and variance (vv) are shown. Largest mean carapace length occurs in the Upper Miocene.

tt	nn	mm	vv
0.00585	4	272.9348	14139.94
0.06885	2	831.5000	684.50
0.45350	1	722.5000	0.00
1.29350	5	876.4427	134870.49
2.19700	3	1178.3333	821158.33
3.09400	3	451.6667	40558.33
4.46600	2	826.1667	15196.06
6.28900	1	1850.0000	0.00

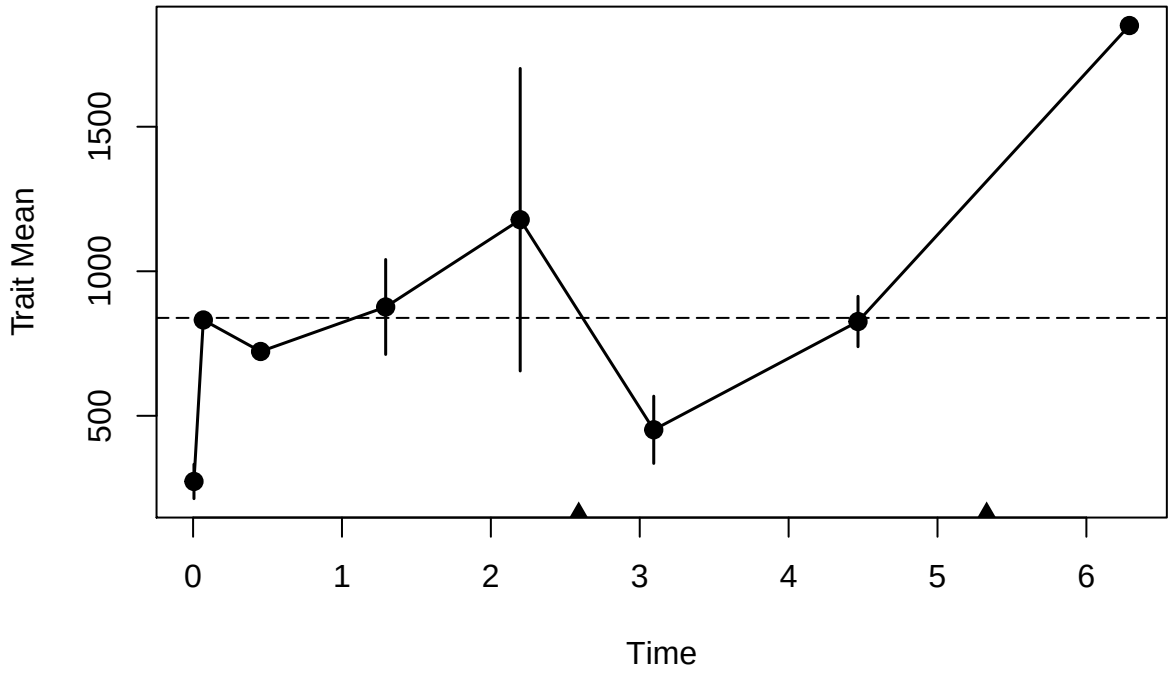


Figure S10: Evolutionary trajectory of Testudinidae body size on Eurasian islands. Bars respresent standard errors of mean. The dashed line depicts the mean carapace length averaged across all time bins. The triangles indicate the Pleistocene/Pliocene and Pliocene/Miocene borders, respectively. Body size decreases starting from the Upper Miocene, peaks shortly during the Lower Pleistocene and then drops sharply during the Holocene.

Table S8: Model-fitting results for insular testudinids in Eurasia. Stasis is the best supported model.

	logL	K	AICc	Akaike.wt
GRW	-56.16352	2	119.3270	0.027
URW	-63.16971	1	129.1394	0.000
Stasis	-52.56060	2	112.1212	0.973

Appendix F Tables

Table S9: Mean carapace lengths and number of species (n) per genus and stratigraphic stage.

Stage	Genus	n	$\bar{x}$ CL
Modern	*Aldabrachelys*	12	974.5833
Modern	*Astrochelys*	14	366.2143
Modern	*Centrochelys*	3	493.3333
Modern	*Chelonoidis*	45	531.5178
Modern	*Chersina*	15	176.2667
Modern	*Cylindraspis*	5	724.0000
Modern	*Geochelone*	8	252.1250
Modern	*Gopherus*	23	302.4839
Modern	*Hesperotestudo*	1	250.0000
Modern	*Homopus*	7	139.2857
Modern	*Indotestudo*	16	242.9875
Modern	*Kinixys*	15	213.0667
Modern	*Malacochersus*	2	166.5000
Modern	*Manouria*	9	380.7778
Modern	*Psammobates*	17	113.4118
Modern	*Pyxis*	16	124.1875
Modern	*Stigmochelys*	6	405.3333
Modern	*Testudo*	39	197.5436
Upper Pleistocene	*Centrochelys*	1	850.0000
Upper Pleistocene	*Chelonoidis*	11	693.1818
Upper Pleistocene	*Eurotestudo*	1	187.0000
Upper Pleistocene	*gen. indet.*	1	813.0000
Upper Pleistocene	*Geochelone*	2	475.0000
Upper Pleistocene	*Gopherus*	22	294.1545
Upper Pleistocene	*Hesperotestudo*	10	468.2760
Upper Pleistocene	*Indotestudo*	1	270.0000
Middle Pleistocene	*Centrochelys*	4	722.5000

Table S9 – *continued from previous page*

Stage	Genus	n	$\bar{x}$ CL
Middle Pleistocene	*Chelonoidis*	1	1139.0000
Middle Pleistocene	*Eurotestudo*	4	195.5250
Middle Pleistocene	*Geochelone*	1	170.0000
Middle Pleistocene	*Gopherus*	33	307.0721
Middle Pleistocene	*Hesperotestudo*	5	882.0000
Middle Pleistocene	*Testudo*	5	198.7400
Lower Pleistocene	*Centrochelys*	4	762.5000
Lower Pleistocene	*Cheirogaster*	2	857.0000
Lower Pleistocene	*Chelonoidis*	3	716.6667
Lower Pleistocene	*Eurotestudo*	4	201.5250
Lower Pleistocene	*gen. indet.*	1	900.0000
Lower Pleistocene	*Geochelone*	1	340.0000
Lower Pleistocene	*Gopherus*	13	316.8077
Lower Pleistocene	*Hesperotestudo*	16	323.0562
Lower Pleistocene	*Megalochelys*	5	1041.8800
Lower Pleistocene	*Psammobates*	1	107.8000
Lower Pleistocene	*Testudo*	6	259.1667
Lower Pleistocene	*Titanochelon*	1	1300.0000
Gelasian	*Centrochelys*	1	2050.0000
Gelasian	*Eurotestudo*	1	150.0000
Gelasian	*Gopherus*	15	185.7467
Gelasian	*Hesperotestudo*	2	1000.0000
Gelasian	*Manouria*	1	900.0000
Gelasian	*Megalochelys*	3	1683.3333
Gelasian	*Testudo*	6	166.0000
Gelasian	*Titanochelon*	2	1640.0000
Piacencian	*Aldabrachelys*	3	1333.3333
Piacencian	*Centrochelys*	1	610.0000
Piacencian	*Chelonoidis*	4	442.7500

Table S9 – *continued from previous page*

Stage	Genus	n	$\bar{x}$ CL
Piacencian	*Gopherus*	1	885.5000
Piacencian	*Hesperotestudo*	5	211.1600
Piacencian	*Homopus*	1	90.0000
Piacencian	*Megalochelys*	2	1600.0000
Piacencian	*Testudo*	3	230.0000
Piacencian	*Titanochelon*	1	520.0000
Zanclean	*Caudochelys*	2	805.5000
Zanclean	*Centrochelys*	3	913.3333
Zanclean	*Cheirogaster*	1	739.0000
Zanclean	*Ergilemys*	2	209.0000
Zanclean	*Geochelone*	6	741.0000
Zanclean	*Hesperotestudo*	1	195.8000
Zanclean	*Testudo*	5	1377.0000
Zanclean	*Titanochelon*	6	1300.0000
Messinian	*Hesperotestudo*	2	941.0000
Messinian	*Megalochelys*	2	1950.0000
Messinian	*Testudo*	4	176.7500
Messinian	*Titanochelon*	2	1500.0000
Tortonian	*“Hadrianus”*	1	1000.0000
Tortonian	*Cheirogaster*	3	1288.3333
Tortonian	*gen. indet.*	3	660.0000
Tortonian	*Geochelone*	3	741.3333
Tortonian	*Gopherus*	6	354.0000
Tortonian	*Hesperotestudo*	4	439.9750
Tortonian	*Paleotestudo*	3	233.6667
Tortonian	*Testudo*	20	218.3050
Tortonian	*Titanochelon*	2	1400.0000
Serravallian	*Cheirogaster*	2	1250.0000
Serravallian	*gen. indet.*	1	270.0000

Table S9 – *continued from previous page*

Stage	Genus	n	$\bar{x}$ CL
Serravallian	*Gopherus*	1	500.0000
Serravallian	*Paleotestudo*	19	206.5789
Serravallian	*Testudo*	3	190.2333
Serravallian	*Titanochelon*	1	1353.0000
Langhian	*Caudochelys*	1	339.9000
Langhian	*Chelonoidis*	3	553.3333
Langhian	*Ergilemys*	1	1000.0000
Langhian	*gen. indet.*	1	1000.0000
Langhian	*Paleotestudo*	2	272.5000
Langhian	*Testudo*	2	337.5000
Langhian	*Titanochelon*	4	1312.5000
Burdigalian/Aquitanian	*Caudochelys*	1	334.0000
Burdigalian/Aquitanian	*gen. indet.*	1	270.0000
Burdigalian/Aquitanian	*Geochelone*	4	652.5000
Burdigalian/Aquitanian	*Impregnochelys*	1	620.0000
Burdigalian/Aquitanian	*Mesocherus*	5	180.0000
Burdigalian/Aquitanian	*Namibchersus*	9	518.1111
Burdigalian/Aquitanian	*Paleotestudo*	2	146.1500
Burdigalian/Aquitanian	*Testudo*	6	252.1167
Burdigalian/Aquitanian	*Titanochelon*	1	1001.0000

Table S10: Mean carapace lengths and number of species (n) per genus summarised for the complete data set.

Genus	n	$\bar{x}$ CL
“Hadrianus”	1	1000.0000
Aldabrachelys	15	1046.3333
Astrochelys	14	366.2143
Caudochelys	4	571.2250
Centrochelys	17	804.1176

Table S10 – *continued from previous page*

Genus	n	$\bar{x}$ CL
Cheirogaster	8	1102.2500
Chelonoidis	67	571.0940
Chersina	15	176.2667
Cylindraspis	5	724.0000
Ergilemys	3	472.6667
Eurotestudo	10	192.5200
gen. indet.	8	654.1250
Geochelone	25	510.2800
Gopherus	114	298.0361
Hesperotestudo	46	465.3296
Homopus	8	133.1250
Impregnochelys	1	620.0000
Indotestudo	17	244.5765
Kinixys	15	213.0667
Malacochersus	2	166.5000
Manouria	10	432.7000
Megalochelys	12	1446.6167
Mesocherus	5	180.0000
Namibchersus	9	518.1111
Paleotestudo	26	210.1269
Psammobates	18	113.1000
Pyxis	16	124.1875
Stigmochelys	6	405.3333
Testudo	99	269.2465
Titanochelon	20	1315.2000

Table S11: Descriptive statistics of carapace length for the entire data set (all) as well as different subgroups, i. e. per time bin, all fossil testudinids, continental and insular data both in general and for modern and fossil testudinids separately and, finally, per continent. The table contains sample size (n), minimum (min), maximum (max), variance (s^2), mean ($\bar{x}$), log mean ($log(\bar{x})$), median ($\tilde{x}$), log median ($log(\tilde{x})$), skewness ($skew$), log skewness ($log(skew)$), kurtosis ($kurt$) and log kurtosis ($log(kurt)$) of carapace length.

n	min	max	s^2	$\bar{x}$	$log(\bar{x})$	$\tilde{x}$	$log(\tilde{x})$	$skew$	$log(skew)$	$kurt$	$log(kurt)$	Subgroup
616	80.00	2500	164537.80	437.2	2.5	270.5	2.4	2.14	0.69	8.00	2.73	all
253	80.00	1300	67485.50	330.3	2.4	242.0	2.4	1.83	0.58	5.87	2.69	Modern
49	102.44	1250	69690.66	445.9	2.6	334.7	2.5	1.20	0.24	3.61	2.56	Upper Pleistocene
53	132.00	1800	97910.83	387.1	2.5	292.9	2.5	3.03	1.52	12.24	5.55	Middle Pleistocene
57	107.80	2000	161948.82	463.5	2.5	263.0	2.4	1.74	0.73	5.76	2.40	Lower Pleistocene
31	118.90	2050	411224.51	555.2	2.5	194.9	2.3	1.31	0.93	3.12	2.11	Gelasian
21	90.00	1600	270535.82	610.6	2.6	428.0	2.6	1.00	0.14	2.50	1.99	Piacencian
26	176.00	2500	476162.71	955.2	2.9	857.5	2.9	1.11	-0.40	3.56	2.30	Zanclean
10	140.00	2100	602611.21	948.9	2.8	916.0	2.9	0.26	-0.22	1.49	1.29	Messinian
45	107.00	1540	175470.12	462.7	2.5	250.0	2.4	1.49	0.81	3.74	2.54	Tortonian
27	111.00	1500	126060.40	337.7	2.4	220.0	2.3	2.49	1.77	7.77	5.30	Serravallian
14	270.00	1600	230451.33	747.9	2.8	700.0	2.8	0.30	0.03	1.55	1.18	Langhian
30	113.00	1100	76288.76	406.8	2.5	302.4	2.5	1.27	0.45	3.45	2.26	Burdigalian/Aquitanian
363	90.00	2500	219004.66	511.7	2.6	285.6	2.5	1.83	0.68	6.11	2.42	Fossil
469	81.00	2500	157808.79	392.9	2.5	250.0	2.4	2.65	1.07	10.57	3.74	continental
147	80.00	2000	160834.35	578.5	2.6	500.0	2.7	1.02	-0.27	3.95	2.05	insular

Table S11 – *continued from previous page*

n	min	max	s^2	$\bar{x}$	$log(\bar{x})$	$\tilde{x}$	$log(\tilde{x})$	$skew$	$log(skew)$	$kurt$	$log(kurt)$	Subgroup
157	81.00	830	17009.02	244.0	2.3	221.0	2.3	1.92	0.29	8.09	2.98	modern continental
96	80.00	1300	118641.09	471.5	2.6	353.0	2.5	0.82	0.01	2.47	1.77	modern insular
312	90.00	2500	212116.79	467.9	2.5	270.0	2.4	2.11	0.96	7.25	2.96	fossil continental
51	150.00	2000	180825.40	780.0	2.8	750.0	2.9	1.11	-0.40	4.02	3.18	fossil insular
142	80.00	2050	112417.26	347.7	2.4	193.5	2.3	2.10	0.68	7.97	2.48	Africa
242	102.44	1800	82209.71	415.0	2.5	302.2	2.5	1.92	0.75	6.79	2.91	America
59	150.00	2100	323123.20	585.5	2.6	280.0	2.4	1.43	0.85	3.61	2.24	Asia
173	107.00	2500	254222.84	491.2	2.5	245.0	2.4	1.86	0.81	6.30	2.34	Europe

Table S12: Data set, fossil.

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Astrochelys	Astrochelys radiata	395.00	m	Modern	0.000001	y	Africa
Kinixys	Kinixys belliana	162.00	m	Modern	0.000001	n	Africa
Psammobates	Psammobates geometricus	107.00	m	Modern	0.000001	n	Africa
Kinixys	Kinixys belliana	157.00	m	Modern	0.000001	n	Africa
Aldabrachelys	Aldabrachelys gigantea	870.00	m	Modern	0.000001	y	Africa
Kinixys	Kinixys belliana	174.00	m	Modern	0.000001	n	Africa
Stigmochelys	Stigmochelys pardalis	345.00	m	Modern	0.000001	n	Africa
Psammobates	Psammobates geometricus	92.00	m	Modern	0.000001	n	Africa
Chersina	Chersina angulata	179.30	m	Modern	0.000001	n	Africa
Chersina	Chersina angulata	170.00	m	Modern	0.000001	n	Africa
Testudo	Testudo kleinmanni	144.00	m	Modern	0.000001	n	Africa
Malacochersus	Malacochersus tornieri	153.00	m	Modern	0.000001	n	Africa
Psammobates	Psammobates oculifer	119.00	m	Modern	0.000001	n	Africa
Kinixys	Kinixys homeana	193.00	m	Modern	0.000001	n	Africa
Cylindraspis	Cylindraspis vosmaeri	500.00	m	Modern	0.000001	y	Africa
Homopus	Homopus aerolatus	88.00	m	Modern	0.000001	n	Africa
Stigmochelys	Stigmochelys pardalis	405.00	m	Modern	0.000001	n	Africa
Chersina	Chersina angulata	162.00	m	Modern	0.000001	n	Africa

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Kinixys	Kinixys belliana	180.00	m	Modern	0.000001	n	Africa
Astrochelys	Astrochelys radiata	285.00	m	Modern	0.000001	y	Africa
Kinixys	Kinixys erosa	400.00	m	Modern	0.000001	n	Africa
Astrochelys	Astrochelys radiata	242.00	m	Modern	0.000001	y	Africa
Aldabrachelys	Aldabrachelys gigantea	810.00	m	Modern	0.000001	y	Africa
Pyxis	Pyxis planicauda	126.00	m	Modern	0.000001	y	Africa
Cylindraspis	Cylindraspis indica	600.00	m	Modern	0.000001	y	Africa
Psammobates	Psammobates tentorius	111.00	m	Modern	0.000001	n	Africa
Kinixys	Kinixys erosa	164.00	m	Modern	0.000001	n	Africa
Kinixys	Kinixys erosa	271.00	m	Modern	0.000001	n	Africa
Indotestudo	Indotestudo travancorica	224.00	m	Modern	0.000001	n	Africa
Psammobates	Psammobates oculifer	101.00	m	Modern	0.000001	n	Africa
Homopus	Homopus signatus	94.00	m	Modern	0.000001	n	Africa
Kinixys	Kinixys belliana	194.00	m	Modern	0.000001	n	Africa
Kinixys	Kinixys belliana	230.00	m	Modern	0.000001	n	Africa
Stigmochelys	Stigmochelys pardalis	720.00	m	Modern	0.000001	n	Africa
Kinixys	Kinixys homeana	223.00	m	Modern	0.000001	n	Africa
Kinixys	Kinixys lobatsiana	200.00	m	Modern	0.000001	n	Africa

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Kinixys	Kinixys natalensis	160.00	m	Modern	0.000001	n	Africa
Chersina	Chersina angulata	202.00	m	Modern	0.000001	n	Africa
Chersina	Chersina angulata	351.00	m	Modern	0.000001	y	Africa
Homopus	Homopus femoralis	168.00	m	Modern	0.000001	n	Africa
Centrochelys	Centrochelys sulcata	215.00	m	Modern	0.000001	n	Africa
Astrochelys	Astrochelys yniphora	307.00	m	Modern	0.000001	y	Africa
Chersina	Chersina angulata	181.00	m	Modern	0.000001	n	Africa
Psammobates	Psammobates tentorius	145.00	m	Modern	0.000001	n	Africa
Stigmochelys	Stigmochelys pardalis	315.00	m	Modern	0.000001	n	Africa
Pyxis	Pyxis planicauda	160.00	m	Modern	0.000001	y	Africa
Psammobates	Psammobates antiquorum	107.80	m	Lower Pleistocene	1.800000	n	Africa
Stigmochelys	Stigmochelys pardalis	350.00	m	Modern	0.000001	n	Africa
Aldabrachelys	Aldabrachelys abrupta	1000.00	mo	Modern	0.002000	y	Africa
Chersina	Chersina angulata	181.90	m	Modern	0.000001	y	Africa
Psammobates	Psammobates tentorius	116.00	m	Modern	0.000001	y	Africa
Astrochelys	Astrochelys yniphora	415.00	m	Modern	0.000001	y	Africa
Aldabrachelys	Aldabrachelys gigantea	770.00	m	Modern	0.000001	y	Africa
Chersina	Chersina angulata	160.00	m	Modern	0.000001	n	Africa

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Chersina	Chersina angulata	148.00	m	Modern	0.000001	n	Africa
Aldabrachelys	Aldabrachelys gigantea	720.00	m	Modern	0.000001	y	Africa
Astrochelys	Astrochelys yniphora	426.00	m	Modern	0.000001	y	Africa
Astrochelys	Astrochelys radiata	334.00	m	Modern	0.000001	y	Africa
Centrochelys	Centrochelys sulcata	830.00	m	Modern	0.000001	n	Africa
Pyxis	Pyxis arachnoides	144.00	m	Modern	0.000001	y	Africa
Pyxis	Pyxis arachnoides	86.00	m	Modern	0.000001	y	Africa
Pyxis	Pyxis arachnoides	154.00	m	Modern	0.000001	y	Africa
Pyxis	Pyxis arachnoides	110.00	m	Modern	0.000001	y	Africa
Namibchersus	Namibchersus namaquensis	254.00	m	Burdigalian/Aquitanian	18.000000	n	Africa
Pyxis	Pyxis planicauda	132.00	m	Modern	0.000001	y	Africa
Homopus	Homopus boulengeri	110.00	m	Modern	0.000001	n	Africa
Pyxis	Pyxis planicauda	134.00	m	Modern	0.000001	y	Africa
Pyxis	Pyxis planicauda	120.00	m	Modern	0.000001	y	Africa
Homopus	Homopus solus	109.00	m	Modern	0.000001	n	Africa
Centrochelys	Centrochelys sulcata	435.00	m	Modern	0.000001	n	Africa
Pyxis	Pyxis arachnoides	110.00	m	Modern	0.000001	y	Africa
Pyxis	Pyxis arachnoides	80.00	m	Modern	0.000001	y	Africa

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Astrochelys	Astrochelys radiata	305.00	m	Modern	0.000001	y	Africa
Stigmochelys	Stigmochelys pardalis	297.00	m	Modern	0.000001	n	Africa
Namibchersus	Namibchersus aff. namaquensis	1100.00	mo	Burdigalian/Aquitanian	17.250000	n	Africa
Aldabrachelys	Aldabrachelys gigantea	875.00	m	Modern	0.000001	y	Africa
Namibchersus	Namibchersus aff. namaquensis	550.00	mo	Burdigalian/Aquitanian	17.250000	n	Africa
Chersina	Chersina angulata	166.40	m	Modern	0.000001	n	Africa
Chersina	Chersina angulata	171.60	m	Modern	0.000001	y	Africa
Chersina	Chersina angulata	136.00	m	Modern	0.000001	n	Africa
Geochelone	Geochelone stromeri	425.00	m	Zanclean	4.466000	n	Africa
Testudo	Testudo sp.	184.00	mf	Gelasian	2.500000	n	Africa
Geochelone	Geochelone stromeri	350.00	m	Zanclean	4.466000	n	Africa
Namibchersus	Namibchersus namaquensis	264.00	m	Burdigalian/Aquitanian	19.500000	n	Africa
Pyxis	Pyxis arachnoides	150.00	m	Modern	0.000001	y	Africa
Psammobates	Psammobates oculifer	103.00	m	Modern	0.000001	n	Africa
Psammobates	Psammobates oculifer	105.00	m	Modern	0.000001	n	Africa
Psammobates	Psammobates geometricus	118.00	m	Modern	0.000001	n	Africa
Psammobates	Psammobates geometricus	105.00	m	Modern	0.000001	n	Africa
Testudo	Testudo oughlamensis	120.00	mo	Gelasian	2.500000	n	Africa

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Astrochelys	Astrochelys radiata	355.00	m	Modern	0.000001	y	Africa
Aldabrachelys	Aldabrachelys gigantea	800.00	m	Modern	0.000001	y	Africa
Namibchersus	Namibchersus aff. namaquensis	440.00	mo	Burdigalian/Aquitanian	17.250000	n	Africa
Chersina	Chersina angulata	153.50	m	Modern	0.000001	n	Africa
Cylindraspis	Cylindraspis triserrata	1100.00	m	Modern	0.000001	y	Africa
Astrochelys	Astrochelys yniphora	486.00	m	Modern	0.000001	y	Africa
Chersina	Chersina angulata	161.30	m	Modern	0.000001	y	Africa
Aldabrachelys	“Aldabrachelys” laetoliensis	1000.00	mo	Piacencian	2.703000	n	Africa
Geochelone	Geochelone sp.	1446.00	eh	Tortonian	8.476000	n	Africa
Kinixys	Kinixys sp.	268.00	ef	Modern	0.009500	n	Africa
Aldabrachelys	Aldabrachelys grandidieri	1240.00	m	Modern	0.001500	y	Africa
Testudo	Testudo aff. kenitrensis	142.00	mf	Gelasian	2.500000	n	Africa
Testudo	Testudo sp.	200.00	mf	Gelasian	2.500000	n	Africa
Aldabrachelys	Aldabrachelys gigantea	1190.00	m	Modern	0.000001	y	Africa
Psammobates	Psammobates tentorius	95.00	m	Modern	0.000001	n	Africa
Psammobates	Psammobates tentorius	81.00	m	Modern	0.000001	n	Africa
Pyxis	Pyxis planicauda	114.00	m	Modern	0.000001	y	Africa
Mesocherus	Mesocherus orangeus	160.00	mo	Burdigalian/Aquitanian	17.250000	n	Africa

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Pyxis	Pyxis planicauda	148.00	m	Modern	0.000001	y	Africa
Psammobates	Psammobates oculifer	111.00	m	Modern	0.000001	n	Africa
Geochelone	Geochelone crassa	865.00	mf	Zanclean	4.145000	n	Africa
Pyxis	Pyxis arachnoides	111.00	m	Modern	0.000001	y	Africa
Impregnochelys	Impregnochelys pachytectis	620.00	m	Burdigalian/Aquitanian	19.500000	n	Africa
Mesocherus	Mesocherus orangeus	200.00	mo	Burdigalian/Aquitanian	17.250000	n	Africa
Namibchersus	Namibchersus namaquensis	815.00	m	Burdigalian/Aquitanian	18.000000	n	Africa
Chersina	Chersina angulata	120.00	m	Modern	0.000001	n	Africa
Namibchersus	Namibchersus namaquensis	300.00	m	Burdigalian/Aquitanian	19.500000	n	Africa
Aldabrachelys	Aldabrachelys gigantea	1140.00	m	Modern	0.000001	y	Africa
Astrochelys	Astrochelys radiata	400.00	m	Modern	0.000001	y	Africa
Aldabrachelys	Aldabrachelys grandidieri	1250.00	mo	Modern	0.001500	y	Africa
Astrochelys	Astrochelys yniphora	446.00	m	Modern	0.000001	y	Africa
Cylindraspis	Cylindraspis peltastes	420.00	m	Modern	0.000001	y	Africa
Psammobates	Psammobates geometricus	165.00	m	Modern	0.000001	n	Africa
Mesocherus	Mesocherus orangeus	180.00	mo	Burdigalian/Aquitanian	17.250000	n	Africa
Psammobates	Psammobates oculifer	147.00	m	Modern	0.000001	n	Africa
Cylindraspis	Cylindraspis inepta	1000.00	m	Modern	0.000001	y	Africa

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Centrochelys	Centrochelys atlantica	400.00	mo	Lower Pleistocene	1.300000	y	Africa
Aldabrachelys	Aldabrachelys gigantea	1030.00	m	Modern	0.000001	y	Africa
Homopus	Homopus aerolatus	300.00	m	Modern	0.000001	n	Africa
Psammobates	Psammobates oculifer	107.00	m	Modern	0.000001	n	Africa
Namibchersus	Namibchersus namaquensis	470.00	m	Burdigalian/Aquitanian	18.000000	n	Africa
Astrochelys	Astrochelys yniphora	370.00	m	Modern	0.000001	y	Africa
Centrochelys	Centrochelys marocana	2050.00	mo	Gelasian	2.500000	n	Africa
Kinixys	Kinixys spekii	220.00	m	Modern	0.000001	n	Africa
Homopus	Homopus fenestratus	90.00	mo	Piacencian	3.056500	n	Africa
Malacochersus	Malacochersus tornieri	180.00	m	Modern	0.000001	n	Africa
Homopus	Homopus signatus	106.00	m	Modern	0.000001	n	Africa
Mesocherus	Mesocherus orangeus	180.00	mo	Burdigalian/Aquitanian	17.250000	n	Africa
Testudo	Testudo kenitrensis	132.00	mo	Middle Pleistocene	0.453500	n	Africa
Mesocherus	Mesocherus orangeus	180.00	mo	Burdigalian/Aquitanian	17.250000	n	Africa
Astrochelys	Astrochelys yniphora	361.00	m	Modern	0.000001	y	Africa
Namibchersus	Namibchersus namaquensis	470.00	m	Burdigalian/Aquitanian	18.000000	n	Africa
Geochelone	Geochelone elegans	208.00	m	Modern	0.000001	n	Asia
Geochelone	Geochelone elegans	245.00	m	Modern	0.000001	n	Asia

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Geochelone	Geochelone elegans	221.00	m	Modern	0.000001	n	Asia
Geochelone	Geochelone elegans	220.00	m	Modern	0.000001	y	Asia
Geochelone	Geochelone elegans	221.00	m	Modern	0.000001	n	Asia
Geochelone	Geochelone platynota	222.00	m	Modern	0.000001	n	Asia
Indotestudo	Indotestudo forstenii	202.00	m	Modern	0.000001	y	Asia
Megalochelys	Megalochelys sondaari	1000.00	ec	Lower Pleistocene	1.350000	y	Asia
Indotestudo	Indotestudo forstenii	309.00	m	Modern	0.000001	y	Asia
Megalochelys	Megalochelys atlas	1650.00	mo	Gelasian	2.000000	y	Asia
Indotestudo	Indotestudo forstenii	199.00	m	Modern	0.000001	y	Asia
Indotestudo	Indotestudo elongata	244.20	m	Modern	0.000001	n	Asia
Indotestudo	Indotestudo travancorica	244.20	m	Modern	0.000001	n	Asia
Testudo	Testudo graeca	300.00	m	Modern	0.000001	n	Asia
Manouria	Manouria impressa	165.00	m	Modern	0.000001	n	Asia
Indotestudo	Indotestudo elongata	276.00	m	Modern	0.000001	n	Asia
Indotestudo	Indotestudo elongata	235.00	m	Modern	0.000001	n	Asia
Indotestudo	Indotestudo elongata	208.00	m	Modern	0.000001	n	Asia
Indotestudo	Indotestudo elongata	166.00	m	Modern	0.000001	n	Asia
Manouria	Manouria impressa	350.00	m	Modern	0.000001	n	Asia

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Testudo	Testudo graeca	250.00	m	Modern	0.000001	n	Asia
Testudo	Testudo graeca	280.00	m	Modern	0.000001	y	Asia
Manouria	Manouria emys	212.00	m	Modern	0.000001	n	Asia
Manouria	Manouria emys	445.00	m	Modern	0.000001	n	Asia
Manouria	Manouria emys	330.00	m	Modern	0.000001	n	Asia
Megalochelys	Megalochelys atlas	2000.00	mo	Gelasian	2.190500	n	Asia
Testudo	Testudo changshanesis	330.00	mo	Lower Pleistocene	1.684500	n	Asia
Indotestudo	Indotestudo forstenii	200.50	m	Modern	0.000001	y	Asia
Testudo	Testudo horsfieldii	280.00	m	Modern	0.000001	n	Asia
Megalochelys	Megalochelys sondaari	818.00	ec	Lower Pleistocene	1.350000	y	Asia
Indotestudo	Indotestudo travancorica	249.70	m	Modern	0.000001	n	Asia
Manouria	Manouria punjabiensis	900.00	mo	Gelasian	2.190500	n	Asia
Megalochelys	Megalochelys sp.	1200.00	ev	Lower Pleistocene	0.900000	y	Asia
Indotestudo	Indotestudo elongata	270.00	m	Upper Pleistocene	0.037000	n	Asia
Ergilemys	Ergilemys oskarkuhni	220.00	m	Zanclean	3.950000	n	Asia
Megalochelys	Megalochelys atlas	1600.00	mo	Piacencian	3.094000	n	Asia
Geochelone	Geochelone platynota	300.00	m	Modern	0.000001	n	Asia
Aldabrachelys	Aldabrachelys ? sp.	1500.00	mo	Piacencian	3.000000	n	Asia

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Indotestudo	Indotestudo travancorica	219.60	m	Modern	0.000001	n	Asia
Megalochelys	Megalochelys sp.	191.40	m	Lower Pleistocene	1.684500	y	Asia
Manouria	Manouria oyamai	450.00	mo	Modern	0.011000	y	Asia
Indotestudo	Indotestudo elongata	219.60	m	Modern	0.000001	n	Asia
Megalochelys	Megalochelys atlas	1800.00	m	Messinian	5.423000	n	Asia
Testudo	Testudo transcaucasia	150.00	mo	Gelasian	2.190500	n	Asia
Megalochelys	Megalochelys atlas	1600.00	mo	Piacencian	3.094000	n	Asia
Manouria	Manouria emys	600.00	m	Modern	0.000001	n	Asia
Indotestudo	Indotestudo travancorica	331.00	m	Modern	0.000001	n	Asia
Geochelone	Geochelone sp.	800.00	ev	Burdigalian/Aquitanian	16.500000	n	Asia
Manouria	Manouria impressa	275.00	m	Modern	0.000001	n	Asia
Indotestudo	Indotestudo elongata	360.00	m	Modern	0.000001	n	Asia
Manouria	Manouria emys	600.00	m	Modern	0.000001	n	Asia
Ergilemys	Ergilemys oskarkuhni	198.00	m	Zanclean	3.950000	n	Asia
Megalochelys	Megalochelys sp.	2000.00	m	Lower Pleistocene	1.684500	y	Asia
Megalochelys	Megalochelys atlas	1400.00	mo	Gelasian	2.000000	y	Asia
Geochelone	Geochelone elegans	380.00	m	Modern	0.000001	n	Asia
gen.	gen. indet.	900.00	mo	Lower Pleistocene	1.684500	n	Asia

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Testudo	Testudo ranovi	200.00	mo	Gelasian	2.190500	n	Asia
Aldabrachelys	Aldabrachelys ? sp.	1500.00	mo	Piacencian	3.000000	n	Asia
Megalochelys	Megalochelys atlas	2100.00	mo	Messinian	5.423000	n	Asia
Chelonoidis	Chelonoidis sp.	550.00	m	Modern	0.001000	y	America
Gopherus	Gopherus morafkai	299.00	m	Modern	0.000001	n	America
Hesperotestudo	Hesperotestudo bermudae	500.00	m	Middle Pleistocene	0.310000	y	America
Chelonoidis	Chelonoidis monensis	500.00	m	Upper Pleistocene	0.064500	y	America
Chelonoidis	Chelonoidis alburyorum	453.00	m	Piacencian	3.201500	y	America
Chelonoidis	Chelonoidis marcanoi	614.00	eh	Upper Pleistocene	0.069000	y	America
Chelonoidis	Chelonoidis marcanoi	767.00	eh	Upper Pleistocene	0.069000	y	America
Gopherus	Gopherus flavomarginatus	450.00	m	Lower Pleistocene	1.050000	n	America
Chelonoidis	Chelonoidis alburyorum	428.00	m	Piacencian	3.201500	y	America
Chelonoidis	Chelonoidis marcanoi	778.00	eh	Upper Pleistocene	0.069000	y	America
Chelonoidis	Chelonoidis sombrerensis	990.00	m	Upper Pleistocene	0.069000	y	America
Geochelone	Geochelone sp.	340.00	mo	Lower Pleistocene	1.050000	n	America
Hesperotestudo	Hesperotestudo sp.	1500.00	mo	Lower Pleistocene	0.966000	n	America
Gopherus	Gopherus flavomarginatus	400.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis alburyorum	466.00	m	Piacencian	3.201500	y	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Chelonoidis	Chelonoidis sp.	600.00	mo	Upper Pleistocene	0.069000	y	America
Chelonoidis	Chelonoidis sp.	400.00	mo	Upper Pleistocene	0.069000	y	America
Gopherus	Gopherus berlandieri	195.00	m	Lower Pleistocene	1.050000	n	America
Chelonoidis	Chelonoidis sp.	440.00	mo	Modern	0.001000	y	America
Chelonoidis	Chelonoidis marcanoi	530.00	eh	Upper Pleistocene	0.069000	y	America
Chelonoidis	Chelonoidis cubensis	1139.00	ef	Middle Pleistocene	0.393500	y	America
Chelonoidis	Chelonoidis sp.	800.00	mo	Lower Pleistocene	1.357000	y	America
Gopherus	Gopherus berlandieri	240.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis sp.	660.00	mo	Modern	0.001000	y	America
Chelonoidis	Chelonoidis sp.	512.00	mo	Modern	0.001000	y	America
Chelonoidis	Chelonoidis sp.	854.00	mo	Modern	0.001000	y	America
Chelonoidis	Chelonoidis sp.	750.00	mo	Lower Pleistocene	1.357000	y	America
Chelonoidis	Chelonoidis alburyorum	424.00	m	Piacencian	3.201500	y	America
Chelonoidis	Chelonoidis sp.	550.00	mo	Modern	0.001000	y	America
Gopherus	Gopherus donlaloi	580.00	mo	Modern	0.000175	n	America
Hesperotestudo	Hesperotestudo bermudae	270.00	m	Middle Pleistocene	0.310000	y	America
Gopherus	Gopherus berlandieri	256.30	m	Lower Pleistocene	1.050000	n	America
Chelonoidis	Chelonoidis sp.	600.00	mo	Lower Pleistocene	1.357000	y	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Ergilemys	Ergilemys sp.	1000.00	m	Langhian	14.000000	n	Europe
Testudo	Testudo graeca	195.00	mf	Lower Pleistocene	1.770000	n	Europe
Eurotestudo	Eurotestudo aff. hermanni	194.70	mf	Middle Pleistocene	0.740000	n	Europe
Centrochelys	Centrochelys burchardi	940.00	mo	Middle Pleistocene	0.435000	y	Europe
Titanochelon	Titanochelon bacharidisi	1164.00	m	Zanclean	3.950000	n	Europe
Paleotestudo	Paleotestudo antiqua	159.50	m	Serravallian	13.000000	n	Europe
Testudo	Testudo horsfieldii	111.00	m	Modern	0.000001	n	Europe
Testudo	Testudo marginata	210.00	m	Lower Pleistocene	1.720000	n	Europe
Testudo	Testudo graeca	178.20	m	Modern	0.000001	n	Europe
Testudo	Testudo graeca	200.00	mf	Messinian	5.500000	n	Europe
Testudo	Testudo lunellensis	260.70	mf	Middle Pleistocene	0.450000	n	Europe
Testudo	Testudo sp.	500.00	mo	Zanclean	3.900000	n	Europe
Testudo	Testudo sp.	200.00	mf	Messinian	6.165000	n	Europe
Testudo	Testudo hermanni	143.50	m	Modern	0.000001	y	Europe
Pyxis	Pyxis arachnoides	108.00	m	Modern	0.000001	n	Europe
Eurotestudo	Eurotestudo hermanni	237.60	mf	Middle Pleistocene	0.600000	n	Europe
Testudo	Testudo marginata	246.00	m	Modern	0.000001	n	Europe
Paleotestudo	Paleotestudo sp.	179.30	m	Burdigalian/Aquitanian	16.550000	n	Europe

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Centrochelys	Centrochelys burchardi	500.00	mo	Middle Pleistocene	0.435000	y	Europe
Testudo	Testudo graeca	167.00	m	Messinian	5.500000	n	Europe
Testudo	Testudo marginata	290.00	m	Modern	0.000001	n	Europe
Paleotestudo	Paleotestudo antiqua	191.00	mf	Serravallian	13.600000	n	Europe
Testudo	Testudo hermanni	130.00	m	Modern	0.000001	n	Europe
Testudo	Testudo hermanni	138.50	m	Modern	0.000001	n	Europe
Testudo	Testudo kalksburgensis	230.00	m	Burdigalian/Aquitanian	19.965000	n	Europe
Testudo	Testudo marginata	250.00	m	Modern	0.000001	y	Europe
Testudo	Testudo marginata	242.50	m	Modern	0.000001	y	Europe
Cheirogaster	Cheirogaster sp.	925.00	ef	Lower Pleistocene	0.965000	y	Europe
Testudo	Testudo marginata	246.00	m	Modern	0.000001	n	Europe
Testudo	Testudo horsfieldii	123.00	m	Modern	0.000001	n	Europe
Testudo	Testudo marginata	246.70	m	Modern	0.000001	n	Europe
Testudo	Testudo marginata	241.70	m	Modern	0.000001	n	Europe
Testudo	Testudo hermanni	195.00	m	Modern	0.000001	y	Europe
Testudo	Testudo hermanni	250.00	m	Modern	0.000001	n	Europe
Paleotestudo	Paleotestudo antiqua	203.00	m	Serravallian	12.150000	n	Europe
Testudo	Testudo horsfieldii	114.00	m	Modern	0.000001	n	Europe

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Testudo	Testudo horsfieldii	132.00	m	Modern	0.000001	n	Europe
Centrochelys	Centrochelys robusta	1200.00	ev	Lower Pleistocene	1.300000	y	Europe
Testudo	Testudo hermanni	183.30	m	Modern	0.000001	y	Europe
Testudo	Testudo hermanni	196.00	m	Modern	0.000001	n	Europe
Testudo	Testudo hermanni	176.90	m	Modern	0.000001	n	Europe
Titanochelon	Titanochelon bacharidisi	900.00	mo	Zanclean	3.950000	n	Europe
gen.	gen. indet.	1000.00	mo	Langhian	14.700000	n	Europe
gen.	gen. indet.	270.00	mo	Serravallian	12.200000	n	Europe
Paleotestudo	Paleotestudo cf. antiqua	113.00	mf	Burdigalian/Aquitanian	17.300000	n	Europe
Testudo	Testudo graeca	194.60	m	Modern	0.000001	n	Europe
Testudo	Testudo lunellensis	231.00	ev	Middle Pleistocene	0.453500	n	Europe
Testudo	Testudo lunellensis	176.00	mo	Middle Pleistocene	0.453500	n	Europe
Testudo	Testudo hermanni	168.30	m	Modern	0.000001	y	Europe
Testudo	Testudo sp.	2500.00	mf	Zanclean	3.900000	n	Europe
Testudo	Testudo burgenlandica	275.00	m	Tortonian	8.750000	n	Europe
Testudo	Testudo kalksburgensis	275.00	m	Langhian	14.500000	n	Europe
Titanochelon	Titanochelon bolivari	1150.00	m	Messinian	6.289000	n	Europe
Paleotestudo	Paleotestudo cf. sp.	270.00	mo	Langhian	14.700000	n	Europe

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
gen.	gen. indet.	880.00	m	Tortonian	8.750000	n	Europe
Eurotestudo	Eurotestudo globosa	263.00	m	Lower Pleistocene	1.800000	n	Europe
Paleotestudo	Paleotestudo antiqua	195.00	mf	Serravallian	13.000000	n	Europe
Testudo	Testudo sp.	1200.00	mf	Zanclean	3.960000	n	Europe
Centrochelys	Centrochelys burchardi	650.00	mo	Middle Pleistocene	0.435000	y	Europe
Centrochelys	Centrochelys robusta	850.00	ev	Lower Pleistocene	1.300000	y	Europe
Testudo	Testudo catalaunica	232.00	m	Serravallian	12.350000	n	Europe
Geochelone	Geochelone sp.	1000.00	m	Burdigalian/Aquitanian	16.650000	n	Europe
Geochelone	Geochelone s. l.	1750.00	mo	Zanclean	4.466000	n	Europe
Eurotestudo	Eurotestudo hermanni	170.50	mf	Middle Pleistocene	0.600000	n	Europe
Testudo	Testudo hermanni	160.00	m	Modern	0.000001	y	Europe
Testudo	Testudo hermanni	157.00	m	Modern	0.000001	y	Europe
gen.	gen. indet.	270.00	mo	Burdigalian/Aquitanian	16.400000	n	Europe
Testudo	Testudo hermanni	161.00	m	Modern	0.000001	n	Europe
Testudo	Testudo marginata	242.50	m	Modern	0.000001	y	Europe
Centrochelys	Centrochelys robusta	1100.00	mo	Zanclean	4.917000	y	Europe
Testudo	Testudo rectogularis	213.00	mo	Burdigalian/Aquitanian	16.370000	n	Europe
Testudo	Testudo kalksburgensis	225.00	mo	Burdigalian/Aquitanian	18.000000	n	Europe

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Testudo	Testudo marginata	400.00	m	Modern	0.000001	n	Europe
Testudo	Testudo brevitesta	300.00	mf	Piacencian	2.600000	n	Europe
Testudo	Testudo sp.	232.10	m	Tortonian	10.750000	n	Europe
Testudo	Testudo horsfieldii	136.00	m	Modern	0.000001	n	Europe
Titanochelon	Titanochelon cf. bolivari	1300.00	ev	Langhian	14.895000	n	Europe
Testudo	Testudo marginata	290.00	m	Lower Pleistocene	1.300000	y	Europe
Testudo	Testudo hermanni	147.00	m	Modern	0.000001	n	Europe
Eurotestudo	Eurotestudo hermanni	187.00	mf	Upper Pleistocene	0.110500	n	Europe
Eurotestudo	Eurotestudo aff. hermanni	179.30	mf	Middle Pleistocene	0.740000	n	Europe
Titanochelon	Titanochelon cf. perpiniana	1001.00	mo	Burdigalian/Aquitanian	16.370000	n	Europe
Testudo	Testudo sp.	245.00	m	Tortonian	8.300000	n	Europe
Testudo	Testudo amiatae	140.00	mo	Messinian	5.815000	n	Europe
Cheirogaster	Cheirogaster cf. gymnesica	789.00	mo	Lower Pleistocene	1.800000	y	Europe
Eurotestudo	Eurotestudo hermanni	126.00	mf	Lower Pleistocene	1.150000	n	Europe
Paleotestudo	Paleotestudo antiqua	283.80	mf	Serravallian	12.500000	n	Europe
Cheirogaster	Cheirogaster sp.	1000.00	mo	Serravallian	12.200000	n	Europe
Paleotestudo	Paleotestudo cf. sp.	270.00	mo	Serravallian	12.400000	n	Europe
Paleotestudo	Paleotestudo antiqua	240.00	mf	Serravallian	13.600000	n	Europe

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Paleotestudo	Paleotestudo antiqua	195.00	m	Serravallian	13.000000	n	Europe
Titanochelon	Titanochelon bolivari	1353.00	mo	Serravallian	12.500000	n	Europe
Testudo	Testudo hermanni	154.00	m	Modern	0.000001	n	Europe
Centrochelys	Centrochelys robusta	600.00	ev	Lower Pleistocene	1.300000	y	Europe
Paleotestudo	Paleotestudo antiqua	185.00	mf	Serravallian	13.000000	n	Europe
Titanochelon	Titanochelon schafferi	2500.00	mo	Zanclean	4.466000	n	Europe
Testudo	Testudo promarginata	310.00	mf	Burdigalian/Aquitanian	18.000000	n	Europe
Paleotestudo	Paleotestudo antiqua	206.00	mf	Serravallian	13.000000	n	Europe
Testudo	Testudo steinheimensis	227.70	mf	Serravallian	13.000000	n	Europe
Paleotestudo	Paleotestudo antiqua	234.00	mf	Serravallian	13.600000	n	Europe
Centrochelys	Centrochelys robusta	850.00	mo	Upper Pleistocene	0.066000	y	Europe
Testudo	Testudo promarginata	230.00	mf	Burdigalian/Aquitanian	21.500000	n	Europe
Titanochelon	Titanochelon sp.	1420.00	mo	Gelasian	1.850000	n	Europe
Paleotestudo	Paleotestudo antiqua	240.00	m	Serravallian	13.000000	n	Europe
Titanochelon	Titanochelon aff. schafferi	1860.00	m	Gelasian	2.000000	y	Europe
Testudo	Testudo hermanni	200.00	m	Modern	0.000001	y	Europe
Testudo	Testudo steinheimensis	111.00	m	Serravallian	12.150000	n	Europe
Titanochelon	Titanochelon perpiniana	1140.00	m	Zanclean	3.900000	n	Europe

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Testudo	Testudo cf. graeca	185.00	m	Zanclean	3.900000	n	Europe
Paleotestudo	Paleotestudo antiqua	145.00	mf	Serravallian	13.000000	n	Europe
Cheirogaster	Cheirogaster sp.	1170.00	m	Tortonian	10.250000	n	Europe
Testudo	Testudo cf. promarginata	250.00	m	Tortonian	8.300000	n	Europe
Titanochelon	Titanochelon bolivari	1100.00	mo	Langhian	15.000000	n	Europe
Centrochelys	Centrochelys robusta	790.00	ef	Zanclean	4.917000	y	Europe
Titanochelon	Titanochelon cf. bolivari	1600.00	ef	Langhian	14.895000	n	Europe
Eurotestudo	Testudo hermanni	133.10	mf	Lower Pleistocene	1.220000	n	Europe
Testudo	Testudo hermanni	176.60	m	Modern	0.000001	y	Europe
Testudo	Testudo s. s.	189.00	m	Tortonian	8.000000	n	Europe
Centrochelys	Centrochelys robusta	850.00	mo	Zanclean	4.917000	y	Europe
Testudo	Testudo lunellensis	194.00	mf	Middle Pleistocene	0.450000	n	Europe
Testudo	Testudo hermanni	173.00	m	Modern	0.000001	y	Europe
Paleotestudo	Paleotestudo antiqua	229.00	mf	Serravallian	13.000000	n	Europe
Cheirogaster	Cheirogaster sp.	1500.00	e	Serravallian	13.800000	n	Europe
Testudo	Testudo catalaunica	181.00	m	Tortonian	11.500000	n	Europe
gen.	gen. indet.	813.00	ef	Upper Pleistocene	0.012500	y	Europe
Titanochelon	Titanochelon cf. bolivari	1500.00	mf	Tortonian	9.433000	n	Europe

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Testudo	Testudo sp.	245.00	m	Tortonian	8.300000	n	Europe
Paleotestudo	Paleotestudo antiqua	213.00	mf	Serravallian	13.600000	n	Europe
Testudo	Testudo sp.	2500.00	mf	Zanclean	3.900000	n	Europe
Paleotestudo	Paleotestudo antiqua	180.00	m	Serravallian	13.000000	n	Europe
Paleotestudo	Paleotestudo sp.	270.00	mf	Tortonian	9.500000	n	Europe
Testudo	Testudo hermanni	220.00	mf	Lower Pleistocene	1.300000	n	Europe
Paleotestudo	Paleotestudo sp.	170.00	mf	Tortonian	9.500000	n	Europe
Paleotestudo	Paleotestudo antiqua	183.70	m	Serravallian	12.150000	n	Europe
Testudo	Testudo sp.	245.00	m	Tortonian	8.300000	n	Europe
Eurotestudo	Eurotestudo cf. hermanni	150.00	mo	Gelasian	2.000000	y	Europe
Cheirogaster	Cheirogaster gymnesica	739.00	ef	Zanclean	4.450000	y	Europe
Titanochelon	Titanochelon bolivari	1300.00	mf	Tortonian	9.500000	n	Europe
Testudo	Testudo graeca	210.00	mf	Tortonian	8.450000	n	Europe
Cheirogaster	Cheirogaster richardi	1155.00	mo	Tortonian	10.400000	n	Europe
Paleotestudo	Paleotestudo antiqua	275.00	mf	Langhian	15.000000	n	Europe
Testudo	Testudo cf. promarginata	250.00	m	Tortonian	8.300000	n	Europe
Titanochelon	Titanochelon bacharidisi	900.00	mo	Zanclean	3.950000	n	Europe
Titanochelon	Titanochelon bacharidisi	1196.00	m	Zanclean	3.950000	n	Europe

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Paleotestudo	Paleotestudo antiqua	152.00	m	Serravallian	13.000000	n	Europe
Cheirogaster	Cheirogaster sp.	1540.00	ef	Tortonian	8.300000	n	Europe
Testudo	Testudo sp.	245.00	m	Tortonian	8.300000	n	Europe
Paleotestudo	Paleotestudo antiqua	220.00	mf	Serravallian	13.000000	n	Europe
gen.	gen. indet.	660.00	m	Tortonian	8.750000	n	Europe
Testudo	Testudo pecorinii	225.00	m	Piacencian	3.094000	y	Europe
Testudo	Testudo catalaunica	107.00	m	Tortonian	11.500000	n	Europe
Titanochelon	Titanochelon schafferi	1850.00	m	Messinian	6.250000	y	Europe
Testudo	Testudo catalaunica	175.00	m	Tortonian	11.500000	n	Europe
Titanochelon	Titanochelon sp.	520.00	mo	Piacencian	2.600000	y	Europe
Testudo	Testudo promarginata	304.70	mf	Burdigalian/Aquitanian	21.500000	n	Europe
Titanochelon	Titanochelon gymnesica	1300.00	ef	Lower Pleistocene	1.300000	y	Europe
Testudo	Testudo burgenlandica	112.00	m	Tortonian	8.750000	n	Europe
Centrochelys	Centrochelys vulcanica	610.00	mo	Piacencian	3.094000	y	Europe
Testudo	Testudo brevitesta	165.00	mf	Piacencian	2.600000	n	Europe
Testudo	Testudo sp.	245.00	m	Tortonian	8.300000	n	Europe
gen.	gen. indet.	440.00	m	Tortonian	8.750000	n	Europe
Testudo	Testudo sp.	245.00	m	Tortonian	8.300000	n	Europe

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Eurotestudo	Eurotestudo hermanni	284.00	mf	Lower Pleistocene	1.350000	n	Europe
Testudo	Testudo hermanni	145.90	m	Modern	0.000001	y	Europe
Testudo	Testudo cf. promarginata	250.00	m	Tortonian	8.300000	n	Europe
Testudo	Testudo cf. promarginata	250.00	m	Tortonian	8.300000	n	Europe
Testudo	Testudo marginata	310.00	m	Lower Pleistocene	1.300000	y	Europe
Testudo	Testudo cf. promarginata	250.00	m	Tortonian	8.300000	n	Europe
Paleotestudo	Paleotestudo sp.	261.00	mf	Tortonian	9.500000	n	Europe
Testudo	Testudo catalaunica	165.00	m	Tortonian	11.500000	n	Europe
“Hadrianus”	“Hadrianus sp.”	1000.00	m	Tortonian	8.300000	n	Europe
Titanochelon	Titanochelon bolivari	1250.00	mo	Langhian	15.000000	n	Europe
Centrochelys	Centrochelys burchardi	800.00	m	Middle Pleistocene	0.435000	y	Europe
Gopherus	Gopherus polyphemus	217.90	mo	Lower Pleistocene	1.200000	n	America
Gopherus	Gopherus polyphemus	238.90	m	Modern	0.000001	n	America
Gopherus	Gopherus polyphemus	102.44	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus polyphemus	327.60	mo	Upper Pleistocene	0.069000	n	America
Hesperotestudo	Hesperotestudo crassiscutata	284.90	m	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus polyphemus	276.60	mo	Lower Pleistocene	1.200000	n	America
Gopherus	Gopherus praecedens	360.00	mo	Upper Pleistocene	0.069000	n	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Gopherus	Gopherus polyphemus	278.00	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus sp.	236.70	mo	Gelasian	1.900000	n	America
Gopherus	Gopherus polyphemus	273.24	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus polyphemus	302.40	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus polyphemus	268.80	m	Modern	0.000001	y	America
Hesperotestudo	Hesperotestudo crassiscutata	425.00	mo	Upper Pleistocene	0.012000	n	America
Gopherus	Gopherus polyphemus	334.70	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus polyphemus	300.00	m	Modern	0.000001	y	America
Gopherus	Gopherus polyphemus	350.00	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus polyphemus	258.30	mo	Upper Pleistocene	0.069000	n	America
Hesperotestudo	Hesperotestudo crassiscutata	180.40	m	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus flavomarginatus	371.00	m	Modern	0.000001	n	America
Gopherus	Gopherus polyphemus	284.90	mo	Upper Pleistocene	0.069000	n	America
Hesperotestudo	Hesperotestudo crassiscutata	188.00	mo	Upper Pleistocene	0.012000	n	America
Gopherus	Gopherus ? sp.	500.00	m	Serravallian	11.850000	n	America
Hesperotestudo	Hesperotestudo crassiscutata	168.00	m	Lower Pleistocene	1.300000	n	America
Gopherus	Gopherus agassizii	400.00	m	Modern	0.000001	n	America
Hesperotestudo	Hesperotestudo orthopygia	1200.00	mo	Messinian	5.500000	n	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Gopherus	Gopherus polyphemus	353.30	mo	Middle Pleistocene	0.400000	n	America
Gopherus	Gopherus sp.	202.80	mo	Lower Pleistocene	1.800000	n	America
Gopherus	Gopherus polyphemus	387.00	m	Modern	0.000001	n	America
Gopherus	Gopherus polyphemus	279.94	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus sp.	224.10	mo	Lower Pleistocene	1.800000	n	America
Gopherus	Gopherus polyphemus	268.90	mo	Lower Pleistocene	1.200000	n	America
Hesperotestudo	Hesperotestudo sp.	639.00	m	Upper Pleistocene	0.060000	n	America
Gopherus	Gopherus flavomarginatus	281.00	m	Modern	0.000001	n	America
Gopherus	Gopherus polyphemus	252.56	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus polyphemus	293.00	mo	Middle Pleistocene	0.400000	n	America
Gopherus	Gopherus polyphemus	155.50	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus polyphemus	260.50	mo	Middle Pleistocene	0.400000	n	America
Gopherus	Gopherus polyphemus	256.44	mo	Middle Pleistocene	0.250000	n	America
Hesperotestudo	Hesperotestudo sp.	1000.00	mo	Gelasian	2.000000	n	America
Geochelone	Geochelone sp.	350.00	ef	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus sp.	181.00	mo	Gelasian	1.900000	n	America
Geochelone	Geochelone sp.	600.00	mo	Upper Pleistocene	0.012500	y	America
Gopherus	Gopherus polyphemus	303.00	m	Modern	0.000001	y	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Gopherus	Gopherus polyphemus	342.00	m	Modern	0.000001	n	America
Gopherus	Gopherus sp.	256.08	m	Modern	0.000001	n	America
Gopherus	Gopherus sp.	180.90	mo	Gelasian	1.900000	n	America
Hesperotestudo	Hesperotestudo incisa	232.76	m	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus sp.	181.00	mo	Gelasian	1.900000	n	America
Geochelone	Geochelone tedwhitei	440.00	m	Burdigalian/Aquitanian	18.500000	n	America
Gopherus	Gopherus polyphemus	239.80	mo	Middle Pleistocene	0.250000	n	America
Hesperotestudo	Hesperotestudo sp.	974.00	ep	Upper Pleistocene	0.060000	n	America
Gopherus	Gopherus polyphemus	260.11	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus sp.	204.40	mo	Gelasian	1.900000	n	America
Hesperotestudo	Hesperotestudo crassiscutata	192.00	m	Lower Pleistocene	1.300000	n	America
Gopherus	Gopherus sp.	194.90	mo	Gelasian	1.900000	n	America
Gopherus	Gopherus polyphemus	391.90	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus sp.	259.50	mo	Lower Pleistocene	1.800000	n	America
Geochelone	Geochelone sp.	170.00	mf	Middle Pleistocene	0.700000	n	America
Gopherus	Gopherus sp.	230.10	mo	Lower Pleistocene	1.800000	n	America
Hesperotestudo	Hesperotestudo incisa	224.00	m	Lower Pleistocene	1.300000	n	America
Hesperotestudo	Hesperotestudo equicomes	340.00	ev	Middle Pleistocene	0.300000	n	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Hesperotestudo	Hesperotestudo incisa	228.00	m	Lower Pleistocene	1.300000	n	America
Gopherus	Gopherus flavomarginatus	303.00	m	Modern	0.000001	n	America
Testudo	Testudo sp.	400.00	mo	Langhian	14.181000	n	America
Gopherus	Gopherus pertenuis	1050.00	mo	Lower Pleistocene	1.684500	n	America
Hesperotestudo	Hesperotestudo incisa	231.00	m	Lower Pleistocene	1.300000	n	America
Hesperotestudo	Hesperotestudo crassiscutata	327.00	m	Lower Pleistocene	1.300000	n	America
Hesperotestudo	Hesperotestudo incisa	241.00	m	Lower Pleistocene	1.300000	n	America
Hesperotestudo	Hesperotestudo incisa	250.00	e	Modern	0.007500	n	America
Gopherus	Gopherus polyphemus	352.00	mo	Upper Pleistocene	0.012000	n	America
Hesperotestudo	Hesperotestudo johnstoni	235.00	m	Piacencian	3.350000	n	America
Gopherus	Gopherus polyphemus	274.30	mo	Middle Pleistocene	0.250000	n	America
Gopherus	Gopherus flavomarginatus	222.00	m	Modern	0.000001	n	America
Gopherus	Gopherus sp.	241.90	mo	Lower Pleistocene	1.800000	n	America
Gopherus	Gopherus sp.	216.37	m	Modern	0.000001	n	America
Hesperotestudo	Hesperotestudo sp.	1200.00	ev	Tortonian	9.500000	n	America
Gopherus	Gopherus polyphemus	257.80	mo	Middle Pleistocene	0.250000	n	America
Hesperotestudo	Hesperotestudo crassiscutata	282.70	m	Upper Pleistocene	0.069000	n	America
Hesperotestudo	Hesperotestudo campester	1000.00	mo	Gelasian	2.190500	n	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Hesperotestudo	Hesperotestudo incisa	216.00	m	Lower Pleistocene	1.300000	n	America
Hesperotestudo	Hesperotestudo mlynarskii	203.50	m	Lower Pleistocene	1.250000	n	America
Geochelone	Geochelone sp.	880.00	m	Zanclean	4.500000	n	America
Gopherus	Gopherus polyphemus	431.48	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus polyphemus	308.00	m	Modern	0.000001	n	America
Gopherus	Gopherus mohavetus	315.00	m	Tortonian	8.476000	n	America
Gopherus	Gopherus sp.	264.11	m	Modern	0.000001	n	America
Gopherus	Gopherus sp.	118.90	mo	Gelasian	1.900000	n	America
Gopherus	Gopherus polyphemus	337.30	mo	Middle Pleistocene	0.250000	n	America
Gopherus	Gopherus sp.	163.50	mo	Gelasian	1.900000	n	America
Caudochelys	Caudochelys rexroadensis	830.00	m	Zanclean	4.550000	n	America
Hesperotestudo	Hesperotestudo riggsi	159.50	mo	Tortonian	7.600000	n	America
Gopherus	Gopherus polyphemus	306.00	mo	Middle Pleistocene	0.250000	n	America
Hesperotestudo	Hesperotestudo crassiscutata	561.00	m	Lower Pleistocene	1.250000	n	America
Geochelone	Geochelone sp.	176.00	e	Zanclean	5.000000	n	America
Gopherus	Gopherus sp.	218.80	mo	Gelasian	1.900000	n	America
Gopherus	Gopherus agassizi	252.00	m	Upper Pleistocene	0.025500	n	America
Hesperotestudo	Hesperotestudo crassiscutata	180.00	m	Lower Pleistocene	1.300000	n	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Caudochelys	Caudochelys williamsi	334.00	m	Burdigalian/Aquitanian	17.750000	n	America
Hesperotestudo	Hesperotestudo incisa	290.40	m	Lower Pleistocene	1.300000	n	America
Gopherus	Gopherus sp.	245.40	mo	Lower Pleistocene	1.800000	n	America
Gopherus	Gopherus polyphemus	301.97	mo	Upper Pleistocene	0.069000	n	America
Hesperotestudo	Hesperotestudo incisa	212.00	m	Lower Pleistocene	1.300000	n	America
Gopherus	Gopherus sp.	188.30	mo	Gelasian	1.900000	n	America
Hesperotestudo	Hesperotestudo crassiscutata	1250.00	ev	Upper Pleistocene	0.012000	n	America
Gopherus	Gopherus polyphemus	350.83	mo	Middle Pleistocene	0.400000	n	America
Hesperotestudo	Hesperotestudo riggsi	176.00	m	Piacencian	3.000000	n	America
Gopherus	Gopherus polyphemus	304.70	mo	Middle Pleistocene	0.400000	n	America
Gopherus	Gopherus sp.	143.90	mo	Gelasian	1.900000	n	America
Hesperotestudo	Hesperotestudo sp.	176.00	mf	Piacencian	3.100000	n	America
Gopherus	Gopherus polyphemus	260.51	mo	Middle Pleistocene	0.400000	n	America
Gopherus	Gopherus sp.	241.56	m	Modern	0.000001	n	America
Hesperotestudo	Hesperotestudo orthopygia	682.00	mo	Messinian	5.500000	n	America
Hesperotestudo	Hesperotestudo wilsoni	226.00	m	Upper Pleistocene	0.018000	n	America
Gopherus	Gopherus sp.	211.31	m	Modern	0.000001	n	America
Gopherus	Gopherus polyphemus	304.20	mo	Upper Pleistocene	0.069000	n	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Hesperotestudo	Hesperotestudo oelrichi	283.80	m	Piacencian	3.000000	n	America
Gopherus	Gopherus laticaudatus	375.00	mo	Middle Pleistocene	0.396350	n	America
Gopherus	Gopherus mohavetus	334.50	m	Tortonian	8.476000	n	America
Hesperotestudo	Hesperotestudo riggsi	159.50	mo	Tortonian	7.600000	n	America
Caudochelys	Caudochelys rexroadensis	781.00	m	Zanclean	4.550000	n	America
Gopherus	Gopherus polyphemus	267.00	mo	Middle Pleistocene	0.250000	n	America
Gopherus	Gopherus polyphemus	295.90	mo	Middle Pleistocene	0.400000	n	America
Hesperotestudo	Hesperotestudo riggsi	195.80	m	Zanclean	4.550000	n	America
Gopherus	Gopherus polyphemus	324.00	mo	Upper Pleistocene	0.069000	n	America
Gopherus	Gopherus sp.	182.30	mo	Gelasian	1.900000	n	America
Gopherus	Gopherus polyphemus	294.16	mo	Upper Pleistocene	0.069000	n	America
Hesperotestudo	Hesperotestudo alleni	240.90	m	Tortonian	10.950000	n	America
Gopherus	Gopherus polyphemus	283.41	mo	Middle Pleistocene	0.250000	n	America
Gopherus	Gopherus polyphemus	272.48	mo	Middle Pleistocene	0.250000	n	America
Hesperotestudo	Hesperotestudo riggsi	185.00	m	Piacencian	3.000000	n	America
Geochelone	Geochelone tedwhitei	370.00	m	Burdigalian/Aquitanian	18.500000	n	America
Gopherus	Gopherus ? sp.	500.00	m	Tortonian	10.100000	n	America
Gopherus	Gopherus sp.	209.60	mo	Gelasian	1.900000	n	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Gopherus	Gopherus polyphemus	308.20	mo	Middle Pleistocene	0.400000	n	America
Gopherus	Gopherus polyphemus	314.60	mo	Middle Pleistocene	0.250000	n	America
Gopherus	Gopherus sp.	193.30	mo	Gelasian	1.900000	n	America
Gopherus	Gopherus sp.	188.70	mo	Gelasian	1.900000	n	America
Gopherus	Gopherus polyphemus	302.40	mo	Middle Pleistocene	0.250000	n	America
Gopherus	Gopherus polyphemus	292.00	mo	Middle Pleistocene	0.250000	n	America
Gopherus	Gopherus polyphemus	306.00	mo	Middle Pleistocene	0.250000	n	America
Hesperotestudo	Hesperotestudo turgida	230.00	mo	Lower Pleistocene	1.684500	n	America
Gopherus	Gopherus polyphemus	272.57	mo	Middle Pleistocene	0.400000	n	America
Gopherus	Gopherus polyphemus	322.63	mo	Middle Pleistocene	0.250000	n	America
Gopherus	Gopherus flavomarginatus	278.00	m	Modern	0.000001	n	America
Geochelone	Geochelone sp.	500.00	m	Tortonian	10.100000	n	America
Caudochelys	Caudochelys ducateli	339.90	m	Langhian	15.000000	n	America
Gopherus	Gopherus polyphemus	292.94	mo	Middle Pleistocene	0.250000	n	America
Gopherus	Gopherus polyphemus	348.70	mo	Middle Pleistocene	0.400000	n	America
Hesperotestudo	Hesperotestudo sp.	1500.00	mo	Middle Pleistocene	0.700000	n	America
Gopherus	Gopherus polyphemus	285.20	mo	Middle Pleistocene	0.250000	n	America
Gopherus	Gopherus mohavetus	412.50	m	Tortonian	8.476000	n	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Hesperotestudo	Hesperotestudo sp.	1800.00	mo	Middle Pleistocene	0.700000	n	America
Gopherus	Gopherus polyphemus	285.60	mo	Middle Pleistocene	0.400000	n	America
Gopherus	Gopherus canyonensis	885.50	m	Piacencian	2.700000	n	America
Gopherus	Gopherus polyphemus	253.70	mo	Middle Pleistocene	0.250000	n	America
Gopherus	Gopherus polyphemus	293.57	mo	Middle Pleistocene	0.400000	n	America
Gopherus	Gopherus mohavetus	202.00	m	Tortonian	8.476000	n	America
Gopherus	Gopherus mohavetus	360.00	m	Tortonian	8.476000	n	America
Gopherus	Gopherus agassizi	445.00	mo	Middle Pleistocene	0.156000	n	America
Gopherus	Gopherus polyphemus	539.00	mf	Middle Pleistocene	0.700000	n	America
Gopherus	Gopherus polyphemus	283.00	mo	Middle Pleistocene	0.250000	n	America
Hesperotestudo	Hesperotestudo mlynarskii	165.00	m	Lower Pleistocene	1.250000	n	America
Gopherus	Gopherus flavomarginatus	246.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis chilensis	169.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis carbonaria	296.50	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis carbonaria	242.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis chilensis	200.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis carbonaria	253.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis denticulata	333.40	m	Modern	0.000001	n	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Chelonoidis	Chelonoidis carbonaria	247.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis chilensis	186.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis chilensis	157.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis sp.	1000.00	mo	Upper Pleistocene	0.069000	n	America
Chelonoidis	Chelonoidis carbonaria	333.40	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis nigra	745.70	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis carbonaria	290.00	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis sp.	300.00	mo	Langhian	15.900000	n	America
Chelonoidis	Chelonoidis denticulata	365.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis chilensis	183.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis denticulata	317.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis chilensis	169.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis hoodensis	813.00	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis phantastica	860.00	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis lutzae	830.00	m	Upper Pleistocene	0.038500	n	America
Chelonoidis	Chelonoidis nigra	1300.00	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis becki	1050.00	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis nigra	595.00	m	Modern	0.000001	y	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Chelonoidis	Chelonoidis sp.	300.00	mo	Langhian	15.900000	n	America
Chelonoidis	Chelonoidis chilensis	450.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis darwini	965.00	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis nigra	731.30	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis denticulata	616.00	m	Upper Pleistocene	0.120000	n	America
Chelonoidis	Chelonoidis duncanensis	840.00	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis denticulata	820.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis abingdonii	980.00	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis sp.	1060.00	ec	Langhian	15.900000	n	America
Chelonoidis	Chelonoidis nigra	588.00	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis carbonaria	189.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis chathamensis	890.00	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis chilensis	222.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis carbonaria	593.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis denticulata	333.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis nigra	610.00	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis vicina	1250.00	m	Modern	0.000001	y	America
Chelonoidis	Chelonoidis nigra	717.00	m	Modern	0.000001	y	America

Table S12 – *continued from previous page*

Genus	Taxon	CL	estimated	EpochBins	Age	Island	Con
Geochelone	Geochelone hesterna	278.00	m	Tortonian	8.500000	n	America
Chelonoidis	Chelonoidis denticulata	377.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis denticulata	466.00	m	Modern	0.000001	n	America
Chelonoidis	Chelonoidis carbonaria	226.00	m	Modern	0.000001	n	America

Table S13: Data set,

Genus	Taxon	CollNr	SCL	CCL	SCW	CCW	CH	PL	PW	estimated	Island	Con	Reference
Kinixys	Kinixys belliana	ZMB 37388	162.0	16.20	22.5	15.5	21.5	164.0	12.6	m	n	Africa	freshly measured (MFN collection)
Aldabrachelys	Aldabrachelys gigantea	ZMB 51996	770.0	77.00	106.0	52.0	112.0	NA	NA	m	y	Africa	freshly measured (MFN collection)
Astrochelys	Astrochelys yniphora	-	426.0	42.60	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Centrochelys	Centrochelys sulcata	ZMB 63203	215.0	21.50	29.5	16.5	27.0	214.0	14.8	m	n	Africa	freshly measured (MFN collection)
Malacochersus	Malacochersus tornieri	ZMB 63174	153.0	15.30	17.0	10.5	14.0	149.0	9.8	m	n	Africa	freshly measured (MFN collection)
Astrochelys	Astrochelys radiata	-	395.0	39.50	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Pyxis	Pyxis arachnoides	ZMB 37616	110.0	11.00	15.0	8.0	14.0	75.0	7.6	m	y	Africa	freshly measured (MFN collection)
Kinixys	Kinixys homeana	ZMB 17747	193.0	19.30	25.0	14.0	21.0	175.0	11.8	m	n	Africa	freshly measured (MFN collection)
Aldabrachelys	Aldabrachelys gigantea	ZMB 47494	870.0	87.00	116.0	57.0	110.0	NA	NA	m	y	Africa	freshly measured (MFN collection)
Psammobates	Psammobates tentorius	ZMB 28782	111.0	11.10	15.0	8.5	14.0	95.0	7.9	m	n	Africa	freshly measured (MFN collection)
Psammobates	Psammobates oculifer	ZMB 25439	119.0	11.90	17.0	9.0	14.5	99.0	8.4	m	n	Africa	freshly measured (MFN collection)
Psammobates	Psammobates oculifer	ZMB 37472	107.0	10.70	15.0	8.4	13.5	106.0	8	m	n	Africa	freshly measured (MFN collection)
Astrochelys	Astrochelys yniphora	-	307.0	30.70	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Homopus	Homopus aerolatus	ZMB 229	88.0	8.80	10.5	6.9	9.0	78.0	6.1	m	n	Africa	freshly measured (MFN collection)
Homopus	Homopus signatus	ZMB 63173	94.0	9.40	12.5	7.7	11.0	82.0	5.6	m	n	Africa	freshly measured (MFN collection)
Kinixys	Kinixys belliana	ZMB 63191	194.0	19.40	25.5	12.5	19.0	173.0	12	m	n	Africa	freshly measured (MFN collection)
Astrochelys	Astrochelys radiata	-	285.0	28.50	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Kinixys	Kinixys belliana	ZMB 63192	174.0	17.40	24.5	11.5	20.5	143.0	11.1	m	n	Africa	freshly measured (MFN collection)
Kinixys	Kinixys belliana	ZMB 63193	157.0	15.70	21.0	9.9	16.5	141.0	9.4	m	n	Africa	freshly measured (MFN collection)
Aldabrachelys	Aldabrachelys gigantea	ZMB 37545	810.0	81.00	110.0	52.0	NA	NA	NA	m	y	Africa	freshly measured (MFN collection)
Chersina	Chersina angulata	ZMB 49400	162.0	16.20	21.5	10.9	17.5	170.0	9.2	m	n	Africa	freshly measured (MFN collection)
Chersina	Chersina angulata	ZMB 63181	170.0	17.00	23.0	11.4	19.0	169.0	10	m	n	Africa	freshly measured (MFN collection)
Chersina	Chersina angulata	ZMB 63183	120.0	12.00	17.0	8.6	15.5	118.0	7.3	m	n	Africa	freshly measured (MFN collection)
Chersina	Chersina angulata	ZMB 63182	136.0	13.60	18.0	9.9	16.0	138.0	8	m	n	Africa	freshly measured (MFN collection)
Kinixys	Kinixys erosa	ZMB 63190	164.0	16.40	21.0	11.2	16.5	163.0	10.6	m	n	Africa	freshly measured (MFN collection)
Centrochelys	Centrochelys sulcata	ZMB 37387	435.0	43.50	54.0	29.9	53.0	405.0	29.1	m	n	Africa	freshly measured (MFN collection)

Table S13 – *continued from previous page*

Genus	Taxon	CollNr	SCL	CCL	SCW	CCW	CH	PL	PW	estimated	Island	Con	Reference
Indotestudo	Indotestudo travancorica	ZMB 37717	224.0	22.40	28.0	15.2	23.0	200.0	15.4	m	n	Africa	freshly measured (MFN collection)
Stigmochelys	Stigmochelys pardalis	ZMB 37344	405.0	40.50	55.0	27.0	50.5	350.0	24.3	m	n	Africa	freshly measured (MFN collection)
Stigmochelys	Stigmochelys pardalis	ZMB 63235	315.0	31.50	43.5	23.4	39.0	298.0	22.1	m	n	Africa	freshly measured (MFN collection)
Stigmochelys	Stigmochelys pardalis	ZMB 37495	297.0	29.70	41.5	21.4	36.0	271.0	19.2	m	n	Africa	freshly measured (MFN collection)
Stigmochelys	Stigmochelys pardalis	ZMB 42400	345.0	34.50	46.5	24.0	40.0	285.0	21.3	m	n	Africa	freshly measured (MFN collection)
Stigmochelys	Stigmochelys pardalis	ZMB 63232	350.0	35.00	46.0	23.9	45.0	303.0	21.1	m	n	Africa	freshly measured (MFN collection)
Psammobates	Psammobates geometricus	ZMB 192	92.0	9.20	13.5	7.1	13.0	68.0	6.3	m	n	Africa	freshly measured (MFN collection)
Chersina	Chersina angulata	-	181.9	18.19	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Aldabrachelys	Aldabrachelys gigantea	ZMB 47443	800.0	80.00	105.0	51.5	105.0	NA	NA	m	y	Africa	freshly measured (MFN collection)
Astrochelys	Astrochelys yniphora	-	415.0	41.50	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Astrochelys	Astrochelys yniphora	-	370.0	37.00	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Aldabrachelys	Aldabrachelys gigantea	ZMB 51995	1030.0	103.00	138.0	NA	NA	NA	NA	m	y	Africa	freshly measured (MFN collection)
Aldabrachelys	Aldabrachelys gigantea	ZMB ???	720.0	72.00	105.5	55.0	117.0	NA	NA	m	y	Africa	freshly measured (MFN collection)
Cylindraspis	Cylindraspis triserrata	-	1100.0	110.00	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Cylindraspis	Cylindraspis vosmaeri	-	500.0	50.00	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Astrochelys	Astrochelys radiata	-	334.0	33.40	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Astrochelys	Astrochelys radiata	-	305.0	30.50	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Centrochelys	Centrochelys sulcata	-	830.0	83.00	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Psammobates	Psammobates geometricus	ZMB 186	105.0	10.50	13.5	7.4	13.0	90.0	6.9	m	n	Africa	freshly measured (MFN collection)
Astrochelys	Astrochelys radiata	-	242.0	24.20	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Psammobates	Psammobates tentorius	ZMB 37627	116.0	11.60	15.0	9.4	14.5	117.0	8.9	m	y	Africa	freshly measured (MFN collection)
Psammobates	Psammobates tentorius	ZMB 50571	95.0	9.50	12.0	7.3	12.0	79.0	7	m	n	Africa	freshly measured (MFN collection)
Psammobates	Psammobates tentorius	ZMB 14766	81.0	8.10	10.5	6.8	10.0	67.0	5.9	m	n	Africa	freshly measured (MFN collection)
Pyxis	Pyxis planicauda	-	114.0	11.40	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Pyxis	Pyxis planicauda	-	134.0	13.40	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Pyxis	Pyxis planicauda	-	120.0	12.00	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Psammobates	Psammobates oculifer	ZMB 16399	111.0	11.10	16.0	8.8	14.0	108.0	7.9	m	n	Africa	freshly measured (MFN collection)

Table S13 – *continued from previous page*

Genus	Taxon	CollNr	SCL	CCL	SCW	CCW	CH	PL	PW	estimated	Island	Con	Reference
Psammobates	Psammobates oculifer	ZMB 14772	101.0	10.10	15.0	8.0	14.0	98.0	7.3	m	n	Africa	freshly measured (MFN collection)
Psammobates	Psammobates oculifer	ZMB 24261	103.0	10.30	14.0	8.2	13.5	100.0	7.8	m	n	Africa	freshly measured (MFN collection)
Psammobates	Psammobates oculifer	ZMB 37623	105.0	10.50	14.5	7.9	13.5	93.0	7.4	m	n	Africa	freshly measured (MFN collection)
Kinixys	Kinixys belliana	ZMB 37489	180.0	18.00	24.0	12.0	20.5	176.0	11.8	m	n	Africa	freshly measured (MFN collection)
Pyxis	Pyxis planicauda	-	160.0	16.00	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Psammobates	Psammobates geometricus	ZMB 50568	107.0	10.70	15.0	7.9	14.5	79.0	7.3	m	n	Africa	freshly measured (MFN collection)
Aldabrachelys	Aldabrachelys gigantea	-	875.0	87.50	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Aldabrachelys	Aldabrachelys gigantea	-	1190.0	119.00	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chersina	Chersina angulata	-	202.0	20.20	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chersina	Chersina angulata	-	351.0	35.10	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Astrochelys	Astrochelys yniphora	-	446.0	44.60	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chersina	Chersina angulata	ZMB 37393	160.0	16.00	20.0	10.0	17.5	158.0	9.2	m	n	Africa	freshly measured (MFN collection)
Kinixys	Kinixys erosa	ZMB 50198	271.0	27.10	31.5	18.5	26.0	231.0	15.9	m	n	Africa	freshly measured (MFN collection)
Chersina	Chersina angulata	ZMB 37392	181.0	18.10	22.5	11.6	19.0	177.0	9.7	m	n	Africa	freshly measured (MFN collection)
Psammobates	Psammobates oculifer	-	147.0	14.70	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Psammobates	Psammobates tentorius	-	145.0	14.50	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Pyxis	Pyxis arachnoides	-	150.0	15.00	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Psammobates	Psammobates geometricus	ZMB 185	118.0	11.80	18.0	9.1	16.5	112.0	8.2	m	n	Africa	freshly measured (MFN collection)
Stigmochelys	Stigmochelys pardalis	-	720.0	72.00	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chersina	Chersina angulata	-	179.3	17.93	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Astrochelys	Astrochelys radiata	-	355.0	35.50	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Pyxis	Pyxis planicauda	-	126.0	12.60	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Testudo	Testudo kleinmanni	-	144.0	14.40	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Cylindraspis	Cylindraspis indica	-	600.0	60.00	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Astrochelys	Astrochelys yniphora	-	361.0	36.10	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Astrochelys	Astrochelys yniphora	-	486.0	48.60	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Pyxis	Pyxis planicauda	-	148.0	14.80	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the

Table S13 – *continued from previous page*

Genus	Taxon	CollNr	SCL	CCL	SCW	CCW	CH	PL	PW	estimated	Island	Con	Reference
Pyxis	Pyxis arachnoides	-	111.0	11.10	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Pyxis	Pyxis arachnoides	-	110.0	11.00	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Pyxis	Pyxis arachnoides	-	80.0	8.00	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Kinixys	Kinixys lobatsiana	-	200.0	20.00	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Pyxis	Pyxis arachnoides	-	86.0	8.60	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Pyxis	Pyxis arachnoides	-	154.0	15.40	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Kinixys	Kinixys homeana	-	223.0	22.30	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Homopus	Homopus femoralis	-	168.0	16.80	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Pyxis	Pyxis planicauda	-	132.0	13.20	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Homopus	Homopus aerolatus	-	300.0	30.00	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Homopus	Homopus boulengeri	-	110.0	11.00	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Kinixys	Kinixys erosa	-	400.0	40.00	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chersina	Chersina angulata	ZMB 37479	148.0	14.80	20.0	10.1	17.0	142.0	9.5	m	n	Africa	freshly measured (MFN collection)
Psammobates	Psammobates geometricus	-	165.0	16.50	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Homopus	Homopus solus	-	109.0	10.90	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Malacochersus	Malacochersus tornieri	-	180.0	18.00	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chersina	Chersina angulata	-	153.5	15.35	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Pyxis	Pyxis arachnoides	-	144.0	14.40	NA	NA	NA	NA	NA	m	y	Africa	Pedrono, M., & Smith, L. L. (2013). Overview of the
Kinixys	Kinixys belliana	-	230.0	23.00	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Aldabrachelys	Aldabrachelys gigantea	-	1140.0	114.00	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Astrochelys	Astrochelys radiata	-	400.0	40.00	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chersina	Chersina angulata	-	166.4	16.64	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chersina	Chersina angulata	-	171.6	17.16	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Cylindraspis	Cylindraspis peltastes	-	420.0	42.00	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chersina	Chersina angulata	-	161.3	16.13	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Homopus	Homopus signatus	-	106.0	10.60	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Kinixys	Kinixys spekii	-	220.0	22.00	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,

Table S13 – *continued from previous page*

Genus	Taxon	CollNr	SCL	CCL	SCW	CCW	CH	PL	PW	estimated	Island	Con	Reference
Cylindraspis	Cylindraspis inepta	-	1000.0	100.00	NA	NA	NA	NA	NA	m	y	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Kinixys	Kinixys natalensis	-	160.0	16.00	NA	NA	NA	NA	NA	m	n	Africa	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Geochelone	Geochelone elegans	ZMB 63222	208.0	20.80	29.5	14.6	28.5	199.0	13.3	m	n	Asia	freshly measured (MFN collection)
Geochelone	Geochelone elegans	ZMB 37523	245.0	24.50	32.0	16.6	32.0	228.0	14.6	m	n	Asia	freshly measured (MFN collection)
Geochelone	Geochelone elegans	ZMB 63220	221.0	22.10	32.0	16.0	31.0	179.0	13.5	m	n	Asia	freshly measured (MFN collection)
Geochelone	Geochelone elegans	ZMB 63221	220.0	22.00	31.0	15.4	27.0	209.0	14	m	y	Asia	freshly measured (MFN collection)
Geochelone	Geochelone elegans	ZMB 63218	221.0	22.10	31.5	15.1	30.0	203.0	13.7	m	n	Asia	freshly measured (MFN collection)
Geochelone	Geochelone platynota	ZMB 6096	222.0	22.20	29.5	15.1	27.0	NA	MA	m	n	Asia	freshly measured (MFN collection)
Manouria	Manouria emys	-	600.0	60.00	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Indotestudo	Indotestudo forstenii	-	202.0	20.20	NA	NA	NA	NA	NA	m	y	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Indotestudo	Indotestudo travancorica	-	249.7	24.97	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Indotestudo	Indotestudo forstenii	-	309.0	30.90	NA	NA	NA	NA	NA	m	y	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Indotestudo	Indotestudo elongata	-	360.0	36.00	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Indotestudo	Indotestudo forstenii	-	199.0	19.90	NA	NA	NA	NA	NA	m	y	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Indotestudo	Indotestudo elongata	-	244.2	24.42	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Indotestudo	Indotestudo travancorica	-	244.2	24.42	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Manouria	Manouria impressa	ZMB 63172	165.0	16.50	20.0	12.9	18.0	157.0	10.5	m	n	Asia	freshly measured (MFN collection)
Indotestudo	Indotestudo elongata	ZMB 50492	276.0	27.60	33.0	19.4	28.5	246.0	17.1	m	n	Asia	freshly measured (MFN collection)
Indotestudo	Indotestudo elongata	ZMB 63175	235.0	23.50	30.5	16.0	29.5	202.0	14.4	m	n	Asia	freshly measured (MFN collection)
Indotestudo	Indotestudo elongata	ZMB 4174	208.0	20.80	26.0	13.4	20.0	180.0	11.6	m	n	Asia	freshly measured (MFN collection)
Indotestudo	Indotestudo elongata	ZMB 6106	166.0	16.60	21.0	11.3	18.0	151.0	11.3	m	n	Asia	freshly measured (MFN collection)
Manouria	Manouria emys	-	600.0	60.00	NA	NA	NA	NA	NA	m	n	Asia	Karl, H., & Staesche, U. (2007). Fossile Riesen-Lar
Testudo	Testudo graeca	-	250.0	25.00	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo graeca	-	280.0	28.00	NA	NA	NA	NA	NA	m	y	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Manouria	Manouria emys	ZMB 49049	212.0	21.20	26.5	16.5	25.0	NA	NA	m	n	Asia	freshly measured (MFN collection)
Manouria	Manouria emys	ZMB 37350	445.0	44.50	52.0	32.0	50.0	455.0	29.8	m	n	Asia	freshly measured (MFN collection)
Manouria	Manouria emys	ZMB 37342	330.0	33.00	40.5	26.7	37.0	330.0	23.4	m	n	Asia	freshly measured (MFN collection)

Table S13 – *continued from previous page*

Genus	Taxon	CollNr	SCL	CCL	SCW	CCW	CH	PL	PW	estimated	Island	Con	Reference
Indotestudo	Indotestudo travancorica	-	331.0	33.10	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Indotestudo	Indotestudo travancorica	-	219.6	21.96	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Indotestudo	Indotestudo forstenii	-	200.5	20.05	NA	NA	NA	NA	NA	m	y	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo horsfieldii	-	280.0	28.00	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Manouria	Manouria impressa	-	350.0	35.00	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Geochelone	Geochelone elegans	-	380.0	38.00	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Manouria	Manouria impressa	-	275.0	27.50	NA	NA	NA	NA	NA	m	n	Asia	Karl, H., & Staesche, U. (2007). Fossile Riesen-Lar
Indotestudo	Indotestudo elongata	-	219.6	21.96	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Geochelone	Geochelone platynota	-	300.0	30.00	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo graeca	-	300.0	30.00	NA	NA	NA	NA	NA	m	n	Asia	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Gopherus	Gopherus flavomarginatus	-	400.0	40.00	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Gopherus	Gopherus morafkai	-	299.0	29.90	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Gopherus	Gopherus berlandieri	-	240.0	24.00	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo horsfieldii	ZMB 63259	111.0	11.10	14.0	10.0	15.0	108.0	9.5	m	n	Europe	freshly measured (MFN collection)
Pyxis	Pyxis arachnoides	ZMB 37615	108.0	10.80	15.0	7.9	13.0	96.0	7.1	m	n	Europe	freshly measured (MFN collection)
Testudo	Testudo marginata	-	241.7	24.17	NA	NA	NA	NA	NA	m	n	Europe	Willemsen, R. E., & Hailey, A. (2003). Sexual dimor
Testudo	Testudo horsfieldii	ZMB 63258	123.0	12.30	14.5	10.9	15.0	121.0	9.8	m	n	Europe	freshly measured (MFN collection)
Testudo	Testudo hermanni	-	183.3	18.33	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	176.9	17.69	NA	NA	NA	NA	NA	m	n	Europe	Willemsen, R. E., & Hailey, A. (2003). Sexual dimor
Testudo	Testudo horsfieldii	ZMB 63257	114.0	11.40	14.5	10.2	14.0	110.0	9.9	m	n	Europe	freshly measured (MFN collection)
Testudo	Testudo marginata	-	246.7	24.67	NA	NA	NA	NA	NA	m	n	Europe	Willemsen, R. E., & Hailey, A. (2003). Sexual dimor
Testudo	Testudo hermanni	-	196.0	19.60	NA	NA	NA	NA	NA	m	n	Europe	Willemsen, R. E., & Hailey, A. (2003). Sexual dimor
Testudo	Testudo hermanni	-	143.5	14.35	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo graeca	-	194.6	19.46	NA	NA	NA	NA	NA	m	n	Europe	Willemsen, R. E., & Hailey, A. (2003). Sexual dimor
Testudo	Testudo hermanni	-	200.0	20.00	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	250.0	25.00	NA	NA	NA	NA	NA	m	n	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo marginata	-	246.0	24.60	NA	NA	NA	NA	NA	m	n	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,

Table S13 – *continued from previous page*

Genus	Taxon	CollNr	SCL	CCL	SCW	CCW	CH	PL	PW	estimated	Island	Con	Reference
Testudo	Testudo marginata	-	242.5	24.25	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo marginata	-	246.0	24.60	NA	NA	NA	NA	NA	m	n	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	147.0	14.70	NA	NA	NA	NA	NA	m	n	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo marginata	-	290.0	29.00	NA	NA	NA	NA	NA	m	n	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo marginata	-	250.0	25.00	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	145.9	14.59	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo graeca	-	178.2	17.82	NA	NA	NA	NA	NA	m	n	Europe	Willemsen, R. E., & Hailey, A. (2003). Sexual dimor
Testudo	Testudo marginata	-	400.0	40.00	NA	NA	NA	NA	NA	m	n	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo horsfieldii	ZMB 63255	136.0	13.60	18.0	13.0	16.5	129.0	12.2	m	n	Europe	freshly measured (MFN collection)
Testudo	Testudo horsfieldii	ZMB 63256	132.0	13.20	17.0	12.4	17.0	133.0	11.3	m	n	Europe	freshly measured (MFN collection)
Testudo	Testudo hermanni	-	168.3	16.83	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	160.0	16.00	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	154.0	15.40	NA	NA	NA	NA	NA	m	n	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	138.5	13.85	NA	NA	NA	NA	NA	m	n	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	173.0	17.30	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo marginata	-	242.5	24.25	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	195.0	19.50	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	157.0	15.70	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	176.6	17.66	NA	NA	NA	NA	NA	m	y	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	130.0	13.00	NA	NA	NA	NA	NA	m	n	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Testudo	Testudo hermanni	-	161.0	16.10	NA	NA	NA	NA	NA	m	n	Europe	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Gopherus	Gopherus polyphemus	-	300.0	30.00	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Gopherus	Gopherus sp.	MVZ 210020	NA	NA	NA	NA	NA	219.6	NA	m	n	America	Biewer J., Sankey J., Hutchison H., Garber D., 2016
Gopherus	Gopherus sp.	MVZ 210003	NA	NA	NA	NA	NA	192.1	NA	m	n	America	Biewer J., Sankey J., Hutchison H., Garber D., 2016
Gopherus	Gopherus polyphemus	-	268.8	26.88	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Gopherus	Gopherus sp.	MVZ 120004	NA	NA	NA	NA	NA	196.7	NA	m	n	America	Biewer J., Sankey J., Hutchison H., Garber D., 2016
Gopherus	Gopherus sp.	MVZ 210009	NA	NA	NA	NA	NA	232.8	NA	m	n	America	Biewer J., Sankey J., Hutchison H., Garber D., 2016

Table S13 – *continued from previous page*

Genus	Taxon	CollNr	SCL	CCL	SCW	CCW	CH	PL	PW	estimated	Island	Con	Reference
Gopherus	Gopherus sp.	MVZ 210010	NA	NA	NA	NA	NA	240.1	NA	m	n	America	Biewer J., Sankey J., Hutchison H., Garber D., 2016
Gopherus	Gopherus agassizii	-	400.0	40.00	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Gopherus	Gopherus flavomarginatus	KU 39415	303.0	30.30	NA	23.2	NA	NA	NA	m	n	America	Legler, 1959
Gopherus	Gopherus polyphemus	-	308.0	30.80	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Gopherus	Gopherus polyphemus	-	303.0	30.30	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Gopherus	Gopherus polyphemus	-	387.0	38.70	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Gopherus	Gopherus polyphemus	-	342.0	34.20	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Gopherus	Gopherus flavomarginatus	USNM 61253	222.0	22.20	NA	16.6	NA	212.0	NA	m	n	America	Legler, 1959
Gopherus	Gopherus flavomarginatus	USNM 61254	371.0	37.10	NA	29.2	NA	358.0	NA	m	n	America	Legler, 1959
Gopherus	Gopherus polyphemus	-	238.9	23.89	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Gopherus	Gopherus flavomarginatus	USNM 60976	246.0	24.60	NA	21.2	NA	252.0	NA	m	n	America	Legler, 1959
Gopherus	Gopherus flavomarginatus	IU 42953	281.0	28.10	NA	22.0	NA	NA	NA	m	n	America	Legler, 1959
Gopherus	Gopherus flavomarginatus	IU 42954	278.0	27.80	NA	21.4	NA	NA	NA	m	n	America	Legler, 1959
Chelonoidis	Chelonoidis nigra	USNM 51069	588.0	58.80	68.3	44.5	NA	506.0	NA	m	y	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis nigra	USNM1 102904	610.0	61.00	67.5	44.4	NA	515.0	NA	m	y	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis carbonaria	-	593.0	59.30	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis abingdonii	-	980.0	98.00	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis denticulata	-	333.4	33.34	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis chilensis	UF33604	169.0	16.90	21.5	13.2	NA	161.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis chilensis	UF33618	186.0	18.60	25.0	14.7	NA	169.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis nigra	-	717.0	71.70	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis chilensis	UF33617	169.0	16.90	22.8	14.6	NA	162.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis carbonaria	UF27384	242.0	24.20	31.7	15.5	NA	219.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis carbonaria	UF33597	253.0	25.30	31.7	15.3	NA	215.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis nigra	USNM1 222494	595.0	59.50	68.0	43.6	NA	533.0	NA	m	y	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis carbonaria	-	333.4	33.34	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis carbonaria	UF5259	226.0	22.60	28.7	12.9	NA	198.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t

Table S13 – *continued from previous page*

Genus	Taxon	CollNr	SCL	CCL	SCW	CCW	CH	PL	PW	estimated	Island	Con	Reference
Chelonoidis	Chelonoidis becki	-	1050.0	105.00	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis denticulata	UF33661	333.0	33.30	38.0	21.4	NA	305.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis denticulata	UF61931	317.0	31.70	41.2	18.5	NA	291.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis denticulata	UF33670	365.0	36.50	47.0	22.0	NA	326.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis chilensis	UF33603	183.0	18.30	23.4	14.5	NA	166.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis nigra	-	731.3	73.13	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis chilensis	-	200.0	20.00	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis carbonaria	UF48278	247.0	24.70	33.9	15.5	NA	214.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis carbonaria	-	296.5	29.65	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis carbonaria	-	290.0	29.00	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis carbonaria	UF33596	189.0	18.90	24.7	12.1	NA	174.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis nigra	-	745.7	74.57	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis chathamensis	-	890.0	89.00	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis denticulata	UF19242	466.0	46.60	59.7	26.5	NA	410.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis denticulata	UF23231	377.0	37.70	47.1	23.8	NA	334.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis denticulata	-	820.0	82.00	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis duncanensis	-	840.0	84.00	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis chilensis	-	222.0	22.20	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis chilensis	UF33600	157.0	15.70	20.8	11.9	NA	145.0	NA	m	n	America	Franz, R., & Franz, S. E. (2009). A new fossil land t
Chelonoidis	Chelonoidis phantastica	-	860.0	86.00	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis vicina	-	1250.0	125.00	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis hoodensis	-	813.0	81.30	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis nigra	-	1300.0	130.00	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis darwini	-	965.0	96.50	NA	NA	NA	NA	NA	m	y	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,
Chelonoidis	Chelonoidis chilensis	-	450.0	45.00	NA	NA	NA	NA	NA	m	n	America	Itescu, Y., Karraker, N. E., Raia, P., Pritchard, P. C.,

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Kabyle 2 km N, Yambol Region	Bulgaria	42.54720	26.48430	0.0020	Testudo	Testudo sp.	Linnaeus, 1758
El Harhoura 2 (Temara)	Morocco	33.95220	-6.92590	0.0050	Testudo	Testudo graeca	Linnaeus, 1758
El Harhoura 2 (Temara)	Morocco	33.95220	-6.92590	0.0050	Testudo	Testudo sp.	Linnaeus, 1758
Guenfouda Cave (Ghar Zebouj, ??????), Jerada Province	Morocco	34.43300	-2.00000	0.0060	Testudo	Testudo sp.	Linnaeus, 1758
Zebbug and Gahr Dalam Cave deposits	Malta	35.88970	14.44250	0.0660	Testudo	Testudo graeca	Linnaeus, 1758
Rancho La Brea, California	USA	34.05220	-118.24300	0.0240	Gopherus	Gopherus ? sp.	Rafinesque, 1832
Blackwater Loc. No. 1, Roosevelt County, New Mexico	USA	34.00000	-103.50000	0.0110	Hesperotstudo	Hesperotestudo cf. wilsoni	(Milstead, 1956)
Pendejo Cave, Rough Canyon on Fort Bliss land, 21 km east of Orogrande, Otero County, New Mexico	USA	32.41670	-105.91670	0.0350	Gopherus	Gopherus agassizi	(Cooper, 1861)
Robledo Cave, west side of the Robledo Mountains, Doña Ana County, New Mexico	USA	33.00000	-106.50000	0.0110	Gopherus	Gopherus agassizi	(Cooper, 1861)
Schulze Cave Fauna, Edwards County, Texas	USA	30.30000	-99.90000	0.0150	Hesperotestudo	Hesperotestudo cf. wilsoni	(Milstead, 1956)
Arredondo IIA, Alachua County, Florida	USA	29.60000	-82.40000	0.0690	Hesperotestudo	Hesperotestudo incisa	(Hay, 1916)
Orange Lake 2 miles south, Marion County, Florida	USA	29.40000	-82.20000	0.0690	Geochelone	Geochelone sp.	Fitzinger, 1835
Pecos River near Melena and Acme, 10-15 km NE Roswell, Chaves County, New Mexico	USA	33.47000	-104.53000	0.1560	Gopherus	Gopherus agassizi	(Cooper, 1861)
Reddick IA+B, Marion County, Florida	USA	29.10000	-82.30000	0.0690	Gopherus	Gopherus polyphemus	(Daudin, 1803)
Reddick IA+B, Marion County, Florida	USA	29.10000	-82.30000	0.0690	Hesperotestudo	Hesperotestudo crassiscutata	(Leidy, 1889)
Friesenhahn Cave, Bexar County, Texas	USA	29.00000	-98.00000	0.0180	Hesperotestudo	Hesperotestudo wilsoni	(Milstead, 1956)
Clear Creek Local Fauna, Denton County, Texas	USA	33.20000	-97.10000	0.0280	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Ingleside Local Fauna, San Patricio County, Texas	USA	27.00000	-96.00000	0.0600	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Kénitra, Guilloux quarry, near Rabat	Morocco	34.30000	-6.60000	0.4535	Testudo	Testudo kenitrensis	Gmira, 1993
Cova de Gràcia, Park Güell, Barcelona	Spain	41.41360	2.15280	0.4535	Testudo	Testudo lunellensis	Almera &Bofill, 1903
Rock-Cavities, Gibraltar Peninsula	England	36.12030	-5.34190	0.9650	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Caverna de Gràcia, Güell park, Barcelona	Spain	41.40000	2.15000	0.4500	Testudo	Testudo lunellensis	Almera &Bofill, 1903
Cragin Quarry Local Fauna, Meade County, Kansas	USA	37.22420	-100.41760	0.3000	Hesperotestudo	Hesperotestudo equicomes	(Hay, 1917)
Saint-Estève-Janson, l'Escale Cave (Bouches du Rhône)	France	43.68330	5.38330	0.6000	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Soave, Zoppega 2 cave, Verona	Italy	45.42000	11.25000	0.7400	Eurotestudo	Eurotestudo aff. hermanni	(Gmelin, 1789)
Leisey Shell Pit 1A, Hillsborough County, Florida	USA	27.70000	-82.50000	1.2500	Hesperotestudo	Hesperotestudo crassiscutata	(Leidy, 1889)
Leisey Shell Pit 1A, Hillsborough County, Florida	USA	27.70000	-82.50000	1.2500	Hesperotestudo	Hesperotestudo mlynarskii	(Auffenberg, 1998)
Leisey Shell Pit 2, Hillsborough County, Florida	USA	27.70000	-82.50000	1.2500	Hesperotestudo	Hesperotestudo mlynarskii	(Auffenberg, 1998)
Sima del Elefante TE14, Sierra de Atapuerca, Burgos	Spain	42.33000	-3.51000	1.2200	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Monte Tuttavista VII mustelide, Sardinia	Italy	40.38330	9.70000	2.0000	Eurotestudo	Eurotestudo cf. hermanni	(Gmelin, 1789)
Dmanisi	Georgia	41.32000	44.35000	1.7700	Testudo	Testudo graeca	Linnaeus, 1758
White Rock local fauna, Republic County, Kansas	USA	39.90000	-97.70000	2.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
Capo Mannu near San Vero Milis, base of D4 dune, Sardinia	Italy	40.04090	8.38450	2.1970	Testudo	Testudo pecorinii	Delfino, 2008 (p.123-126, figs.5-6)
Lesbos Island, F-Site	Greece	39.50000	26.50000	2.0000	Titanochelon	Titanochelon aff. schafferi	(Szalai, 1931)
Ahl al Oughlam (near Casablanca)	Morocco	33.59310	-7.61640	2.5000	Testudo	Testudo aff. kenitrensis	Gmira, 1993
Ahl al Oughlam (near Casablanca)	Morocco	33.59310	-7.61640	2.5000	Testudo	Testudo sp.	Linnaeus, 1758

Table S14 – *continued from previous page*

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Cova de Ca Na Reia, Eivissa, Ibiza	Spain	38.90910	1.42670	2.6000	Titanochelon	Titanochelon cf. gymneisucs	(Bate, 1914)
Sabertooth Cave, Lecanto 2A, Citrus County, Florida	USA	28.80000	-82.20000	0.0690	Gopherus	Gopherus polyphemus	(Daudin, 1803)
Stazione Ferroviaria, Comiso (RG), Sicily	Italy	36.93330	14.60000	0.4130	gen.	gen. Indet.	Gray, 1825
Contrada Annunziata, Ragusa (RG), Sicily	Italy	36.91670	14.73330	0.4135	Testudo	Testudo sp.	Linnaeus, 1758
Contrada Castellazzo, Vittoria (RG), Sicily	Italy	36.95000	14.53330	0.4135	gen.	gen. Indet.	Gray, 1825
Qesem Cave ~12 km east of Tel Aviv, western slopes Samaria hills	Israel	32.11000	34.98000	0.3100	Testudo	Testudo graeca	Linnaeus, 1758
Caverna de Gràcia, Güell park, Barcelona	Spain	41.40000	2.15000	0.4500	Eurotestudo	Eurotestudo globosa	(Portis, 1890)
Caverna de Gràcia, Güell park, Barcelona	Spain	41.40000	2.15000	0.4500	Eurotestudo	Eurotestudo pyrenaica	(Depéret & Connezan, 1890)
Sima del Elefante TE18+TE19, Sierra de Atapuerca, Burgos	Spain	42.33000	-3.51000	0.2500	Testudo	Testudo sp.	Linnaeus, 1758
Sima del Elefante TE11, Sierra de Atapuerca, Burgos	Spain	42.33000	-3.51000	1.2200	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Sima del Elefante TE12, Sierra de Atapuerca, Burgos	Spain	42.33000	-3.51000	1.2200	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Sima del Elefante TE13, Sierra de Atapuerca, Burgos	Spain	42.33000	-3.51000	1.2200	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Sima del Elefante TE9, Sierra de Atapuerca, Burgos	Spain	42.33000	-3.51000	1.2200	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Pirro Nord (Cava dell'Erba, Cava Pirro); Apricena, Apulia Italy	Italy	41.80190	15.38470	1.5000	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Ahl al Oughlam (near Casablanca)	Morocco	33.59310	-7.61640	2.5000	Geochelone	Geochelone sp.	Fitzinger, 1835
Lewisville Site, Denton County, Texas	USA	33.00000	-97.00000	0.0280	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Libertador San Martín north bank Ensenada stream, 15 km E Diamante, Entre Rios Province	Argentina	-32.08760	-60.48630	0.1200	Chelonoidis	Chelonoidis denticulata	Linnaeus 1766 (p. 325)
Šandalja near Pula	Croatia	44.86830	13.84800	0.0685	Testudo	Testudo graeca	Boulenger, 1891
Valle de Fontechevade, Charente	France	45.68070	0.48000	0.8250	Testudo	Testudo graeca	Linnaeus, 1758
Bate Cave, Rethymnon	Greece	35.36470	24.47140	0.0685	Testudo	Testudo marginata	Schoepff, 1792
Süttö Upper Pleistocene strata, Gerecse Mountains	Hungary	47.75000	18.45000	0.0685	Testudo	Testudo graeca	Linnaeus, 1758
Caprine, Rome	Italy	41.90000	12.48330	0.3550	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Monsummano	Italy	43.86670	10.81670	0.8250	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Palombara Marcellina, Rome	Italy	41.90000	12.48330	0.3550	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Sternatia, Lecce	Italy	40.38330	18.18330	0.0685	Testudo	Testudo sp.	Linnaeus, 1758
Tarquina, Rome	Italy	41.90000	12.48330	0.3550	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Torre del Pagliaccetto, Rome	Italy	41.90000	12.48330	0.0685	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
El Harhoura 1 (Temara)	Morocco	33.95000	-6.93330	0.1050	Testudo	Testudo graeca	Linnaeus, 1758
Crevene Stijena Cave, Petrovica	Serbia	43.11280	19.33030	0.0685	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Crevene Stijena Cave, Petrovica	Serbia	43.11280	19.33030	0.0685	Testudo	Testudo graeca	Linnaeus, 1758
Crevene Stijena Cave, Petrovica	Serbia	43.11280	19.33030	0.0685	Testudo	Testudo sp.	Linnaeus, 1758
Cueva del Boquete de Zafarraya, Sierra de Alhama, Málaga	Spain	36.96670	-4.13330	0.0685	Testudo	Testudo sp.	Linnaeus, 1758
Cueva Horá (Darro, Granada)	Spain	37.35000	-3.30000	0.0685	Eurotestudo	Eurotestudo cf. hermanni	(Gmelin, 1789)
Brown Sand Wedge Local Fauna, Roosevelt County, New Mexico	USA	34.00000	-103.50000	0.0060	Hesperotestudo	Hesperotestudo wilsoni	(Milstead, 1956)
Domebo Local Fauna, Caddo County, Oklahoma	USA	36.00000	-100.00000	0.0110	Hesperotestudo	Hesperotestudo wilsoni	(Milstead, 1956)
Arredondo IIA, Alachua County, Florida	USA	29.60000	-82.40000	0.0690	Hesperotestudo	Hesperotestudo crassiscutata	(Leidy, 1889)
Melbourne, Brevard County, Florida	USA	28.10000	-80.60000	0.0690	Hesperotestudo	Hesperotestudo crassiscutata	(Leidy, 1889)

Table S14 – *continued from previous page*

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Salt Creek, 4.7 mi S and 5.7 mi. W Orla, Reeves County, Texas	USA	31.78000	-103.99000	0.0130	Gopherus	Gopherus cf. sp.	Rafinesque, 1832
Shelter Cave (LACM 1010, UTEP 30), Doña Ana County, New Mexico	USA	33.00000	-106.50000	0.0215	Gopherus	Gopherus agassizi	(Cooper, 1861)
Vero Beach, Indian River County, Florida	USA	27.60000	-80.40000	0.0560	Gopherus	Gopherus polyphemus	(Daudin, 1803)
Vero Beach, Indian River County, Florida	USA	27.60000	-80.40000	0.0560	Hesperotestudo	Hesperotestudo crassiscutata	(Leidy, 1889)
U-Bar Cave Late Wiskonsin, Hidalgo County, New Mexico	USA	31.60000	-108.40000	0.0175	Geochelone	Geochelone cf. sp.	Rafinesque, 1832
Gorham's cave IIIb, Gibraltar Peninsula	England	36.12030	-5.34190	0.0200	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Gruta do Caldeirão, Tomar	Portugal	39.60070	-8.41380	0.0200	Testudo	Testudo sp.	Linnaeus, 1758
Gruta do Escoural, Évora	Portugal	38.57000	-7.91000	0.0200	Eurotestudo	Eurotestudo cf. hermanni	(Gmelin, 1789)
Sims Bayou Local Fauna, Harris County, Texas	USA	29.00000	-95.00000	0.0200	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Megenity Peccary Cave, Crawford County, Indiana	USA	38.33000	-86.55000	0.0370	Hesperotestudo	Hesperotestudo crassiscutata	(Leidy, 1889)
Sabertooth Camel Maze, Dry Cave (UTEP 5), Eddy County, New Mexico	USA	32.00000	-104.00000	0.0255	Gopherus	Gopherus agassizi	(Cooper, 1861)
Sabertooth Camel Maze, Dry Cave (UTEP 5), Eddy County, New Mexico	USA	32.00000	-104.00000	0.0255	Hesperotestudo	Hesperotestudo wilsoni	(Milstead, 1956)
U-Bar Cave Mid Wiskonsin, Hidalgo County, New Mexico	USA	31.60000	-108.40000	0.0315	Geochelone	Geochelone cf. sp.	Rafinesque, 1832
Gruta Nova da Columbeira, Bombarral	Portugal	39.30510	-9.19530	0.0275	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Gorham's cave IV, Gibraltar Peninsula	England	36.12040	-5.34200	0.0330	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Moore Pit, Dallas County, Texas	USA	32.70000	-96.70000	0.0290	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Gruta da Figueira Brava, Arrábida	Portugal	38.56800	-9.14800	0.0300	Eurotestudo	Eurotestudo cf. hermanni	(Gmelin, 1789)
Room of the Vanishing Floor, Dry Cave (UTEP 26, 27), Eddy County, New Mexico	USA	32.00000	-104.00000	0.0335	Gopherus	Gopherus agassizi	(Cooper, 1861)
Easley Ranch Local Fauna, Foard County, Texas	USA	34.00000	-99.00000	0.0550	Geochelone	Geochelone sp.	Fitzinger, 1835
Easley Ranch Local Fauna, Foard County, Texas	USA	34.00000	-99.00000	0.0550	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Ingleside Local Fauna, San Patricio County, Texas	USA	27.00000	-96.00000	0.0600	Gopherus	Gopherus sp.	Rafinesque, 1832
Cova del Rinoceront, eastern Garraf Massif, Can'Aymerich quarry, Castelldelfs	Spain	41.27360	1.96090	0.1105	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Hopwood Farm Site, near Fillmore, Montgomery County, Illinois	USA	39.13000	-89.28000	0.1000	Hesperotestudo	Hesperotestudo crassiscutata	(Leidy, 1889)
Peace Creek, Florida	USA	26.91730	-82.14260	0.1000	Hesperotestudo	Hesperotestudo crassiscutata	(Leidy, 1889)
Cueva del Camino Secteur Central, Pinilla del Valle, Madrid	Spain	40.92540	-3.80630	0.0910	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Cueva del Camino Secteur Nord, Pinilla del Valle, Madrid	Spain	40.92540	-3.80630	0.0920	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
San Vito Lo Capo K22, Sicily	Italy	38.20000	12.75000	0.1500	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Mealhada, Coimbra	Portugal	40.37810	-8.45210	0.1200	Testudo	Testudo sp.	Linnaeus, 1758
Vanguard Cave, Gibraltar Peninsula	England	36.12030	-5.34190	0.1200	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Raebia, Atambua area, Timor	Indonesia	-9.10000	124.90000	0.4535	Geochelone	Geochelone sp.	Fitzinger, 1835
Marjan	Croatia	44.87360	15.27690	0.4135	Testudo	Testudo sp.	Linnaeus, 1758
Loreto di Venosa, Potenza	Italy	40.63330	15.80000	0.8835	Eurotestudo	Eurotestudo cf. hermanni	(Gmelin, 1789)
Spinagallo Cave, Siracusa, Sicily	Italy	37.06670	15.30000	0.4135	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Riparo di Visogliano (TS)	Italy	45.78000	13.65000	0.4500	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Slaughter Canyon Cave, Eddy County, New Mexico	USA	32.00000	-104.00000	0.2090	Gopherus	Gopherus agassizi	(Cooper, 1861)
Dry Cave Fauna, Eddy County, New Mexico	USA	32.40000	-104.50000	0.2900	Gopherus	Gopherus agassizi	(Cooper, 1861)
Dry Cave Fauna, Eddy County, New Mexico	USA	32.40000	-104.50000	0.2900	Hesperotestudo	Hesperotestudo wilsoni	(Milstead, 1956)

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Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Lunel-Viel, Mas des Caves (Hérault)	France	43.68330	4.13330	0.3200	Eurotestudo	Eurotestudo aff. hermanni	(Gmelin, 1789)
Butler Spring XI Ranch (KU Locality 7), Meade County, Kansas	USA	37.00000	-100.00000	0.3000	Gopherus	Gopherus sp.	Rafinesque, 1832
Butler Spring XI Ranch (UM-K2-62), Meade County, Kansas	USA	37.00000	-100.00000	0.3000	Gopherus	Gopherus sp.	Rafinesque, 1832
Butler Spring XI Ranch (UM-K3-59), Meade County, Kansas	USA	37.00000	-100.00000	0.3000	Geochelone	Geochelone sp.	Fitzinger, 1835
Butler Spring XI Ranch (UM-K3-59), Meade County, Kansas	USA	37.00000	-100.00000	0.3000	Gopherus	Gopherus sp.	Rafinesque, 1832
Nye Sink Local Fauna, Beaver County, Oklahoma	USA	36.00000	-100.00000	0.3000	Gopherus	Gopherus sp.	Rafinesque, 1832
Alcamo travertini (TP)	Italy	37.98330	12.96670	0.5900	gen.	gen. Indet.	Gray, 1825
Grotta Marasà (PA)	Italy	38.00000	13.00000	0.5900	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Angus Local Fauna (UNSM No-101), Nuckolls County, Nebraska	USA	40.00000	-98.00000	0.4000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Berends Local Biota, Beaver County, Oklahoma	USA	36.00000	-100.00000	0.4000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Kanopolis Local Fauna, Ellsworth County, Kansas	USA	38.00000	-98.00000	0.4000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Arkalon Local Fauna, Seward County, Kansas	USA	37.00000	-100.00000	0.6000	Gopherus	Gopherus	Rafinesque, 1832
Arkalon Local Fauna, Seward County, Kansas	USA	37.00000	-100.00000	0.6000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Cava Dell'Erba Apricena, Foggia	Italy	41.45000	15.56670	1.1700	Eurotestudo	Eurotestudo ex. gr. hermanni	(Gmelin, 1789)
Cava Pirro Apricena, Foggia	Italy	41.45000	15.56670	1.1700	Eurotestudo	Eurotestudo ex. gr. hermanni	(Gmelin, 1789)
Valdemino Cave, 20-24 (Borgio Verezzi, Liguria)	Italy	44.16330	12.45230	0.7000	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Gilliland local fauna, Burnett Ranch, 7 miles W of Vera, Knox County, Texas	USA	33.80000	-99.50000	0.7000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Casimba de Jatibonica, Santa Clara Province	Cuba	21.95000	-79.17000	1.3000	Testudo	Testudo cubensis	Leidy, 1868
Chapepote spring at Banos de Ciego Montero, Santa Clara Province	Cuba	22.34000	-80.40000	1.3005	Testudo	Testudo cubensis	Leidy, 1869
Tangi Talo, Dhozo Dhalu, Flores	Indonesia	-8.70000	121.10000	1.3000	Geochelone	Geochelone sp.	Fitzinger, 1835
Hato Nuevo, Matanzas Province	Cuba	23.05000	-81.50000	1.3015	Testudo	Testudo cubensis	Leidy, 1870
Wolo Sege, Flores	Indonesia	-8.69060	121.09970	1.0200	Colossochelys	Colossochelys sp.	Falconer & Cautley, 1844
Gervasio 5 (FG)	Italy	41.80000	15.40000	1.4000	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Leisey Shell Pit 1A, Hillsborough County, Florida	USA	27.70000	-82.50000	1.2500	Gopherus	Gopherus polyphemus	(Daudin, 1803)
Leisey Shell Pit 2, Hillsborough County, Florida	USA	27.70000	-82.50000	1.2500	Hesperotestudo	Hesperotestudo crassiscutata	(Leidy, 1889)
Leisey Shell Pit 3, Hillsborough County, Florida	USA	27.70000	-82.50000	1.2500	Hesperotestudo	Hesperotestudo crassiscutata	(Leidy, 1889)
Leisey Shell Pit 3A, Hillsborough County, Florida	USA	27.70000	-82.50000	1.2500	Hesperotestudo	Hesperotestudo crassiscutata	(Leidy, 1889)
Cueva de la Victoria-1 (CV-1), Carthagène, Murcia	Spain	37.61670	-0.86670	1.1500	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Mesilla Basin Fauna C, Doña Ana County, New Mexico	USA	33.00000	-106.50000	1.3500	Gopherus	Gopherus sp.	Rafinesque, 1832
Mesilla Basin Fauna C, Doña Ana County, New Mexico	USA	33.00000	-106.50000	1.3500	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
El Paso, eastern side of the Franklin Mountains and along the Rio Grande, El Paso County, Texas	USA	31.76000	-106.49000	1.4000	Gopherus	Gopherus ? sp.	Rafinesque, 1832
Tijeras Arroyo, Bernalillo County, New Mexico	USA	35.01670	-106.61670	1.4000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Barranco León 5 (BL-5=Capa D), Dépression de Guadix-Baza, Grenade	Spain	37.50000	-3.00000	1.3000	Testudo	Testudo sp.	Linnaeus, 1758
Sierra de Quibas, Abanilla, Murcia	Spain	38.30000	-1.05000	1.3500	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
La Union, Doña Ana County, New Mexico	USA	32.00000	-106.70000	1.7000	Gopherus	Gopherus cf. sp.	Rafinesque, 1832
La Union, Doña Ana County, New Mexico	USA	32.00000	-106.70000	1.7000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Pearson Mesa near Virden, Hidalgo County, New Mexico	USA	31.50000	-108.50000	1.7000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950

Table S14 – *continued from previous page*

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Lakonia	Greece	36.90000	22.60000	1.7200	Testudo	Testudo marginata	Schoepff, 1792
Kislág, Fejer	Hungary	47.00000	18.40000	1.9000	Testudo	Testudo sp.	Linnaeus, 1758
Figline, Upper Valdarno	Italy	43.61670	11.46670	1.8000	Eurotestudo	Eurotestudo globosa	(Portis, 1890)
Il Tasso, S. Giovanni (AR), Upper Valdarno	Italy	43.00000	11.00000	1.8000	Eurotestudo	Eurotestudo globosa	(Portis, 1890)
Le Mignaie, Upper Valdarno	Italy	43.00000	11.00000	1.8000	Eurotestudo	Eurotestudo globosa	(Portis, 1890)
Le Ville, Upper Valdarno	Italy	43.48330	12.08330	1.8000	Eurotestudo	Eurotestudo globosa	(Portis, 1890)
L'Inferno, Upper Valdarno	Italy	43.00000	11.00000	1.8000	Eurotestudo	Eurotestudo globosa	(Portis, 1890)
Montecarlo, Upper Valdarno	Italy	42.86670	10.68330	1.8000	Eurotestudo	Eurotestudo globosa	(Portis, 1890)
Big Springs Gravel Pit (UNSM Ap-103), Antelope County, Nebraska	USA	42.40000	-98.20000	2.0000	Hesperotestudo	Hesperotestudo oelrichi	Holman, 1972
Montoussé 5, Hautes Pyrenees	France	43.06670	0.41670	1.9500	Eurotestudo	Eurotestudo cf. hermanni	(Gmelin, 1789)
Varshets 6 km NNE, Michajlovrad Province	Bulgaria	43.21670	23.28330	2.2500	Testudo	Testudo sp.	Linnaeus, 1758
MacAsphalt Shell Pit, Sarasota County, Florida	USA	27.40000	-82.50000	2.2500	Geochelone	Geochelone sp.	Fitzinger, 1835
St. Petersburg Times Site, Pinellas County, Florida	USA	27.80000	-82.70000	2.2500	Geochelone	Geochelone sp.	Fitzinger, 1835
Kelatchay (Dushak)	Turkmenistan	37.80000	58.50000	2.2000	Agrionemys	Agrionemys horsfieldii	(Gray, 1844)
Es Pujol d'es Fum, Formentera	Spain	38.72350	1.45520	2.6000	Titanochelon	Titanochelon cf. gymnesicus	(Bate, 1914)
Kryshanovka 1	Ukraine	46.56000	30.79170	2.6000	Testudo	Testudo sp.	Linnaeus, 1758
Abime de la Fage, Correze	France	45.36670	1.88330	0.4135	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Hortus Cave, Valflaunès, Herault	France	43.79980	3.87460	0.0685	Testudo	Testudo sp.	Linnaeus, 1758
Tha Chang area, Chaloem Pra Kiat district, Nakhon Ratchasima Province	Thailand	14.98740	102.33520	3.0000	Aldabrachelys	Aldabrachelys ? sp.	Loveridge & Williams, 1975
North Cita Canyon (Middle Stratum), Randall County, Texas	USA	34.90000	-101.60000	2.7000	Gopherus	Gopherus canyonensis	(Johnston, 1937)
Cita Canyon, UCMP V-3721, Harrell Ranch, Randall County, Texas	USA	34.90000	-101.60000	3.3500	Hesperotestudo	Hesperotestudo johnstoni	Auffenberg, 1962
Caballo Local Fauna, Palomas Basin, Sierra County, New Mexico	USA	32.97000	-107.31000	2.0000	Gopherus	Gopherus sp.	Rafinesque, 1832
Caballo Local Fauna, Palomas Basin, Sierra County, New Mexico	USA	32.97000	-107.31000	2.0000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Cita Canyon, UCMP V-3721, Harrell Ranch, Randall County, Texas	USA	34.90000	-101.60000	3.3500	Gopherus	Gopherus canyonensis	(Johnston, 1937)
Las Tunas, Baja California Sur	Mexico	23.18330	-109.18330	3.2500	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Novaya Etulia 2	Moldova	45.52000	28.44000	2.8000	Testudo	Testudo cernovi	Khozatskiy, 1948
Epanomi (EPN I), western Chalkidiki Peninsula, Thessaloniki area	Greece	40.40460	22.89800	3.9500	Titanochelon	Titanochelon bacharidisi	(Vlachos, Tsoukala & Corsini, 2014)
Epanomi (EPN II), western Chalkidiki Peninsula, Thessaloniki area	Greece	40.40460	22.89800	3.9500	Titanochelon	Titanochelon bacharidisi	(Vlachos, Tsoukala & Corsini, 2014)
Altan-Teli main fossiliferous bed (Dzereg valley)	Mongolia	47.10000	93.16670	3.9500	Ergilemys	Ergilemys oskarkuhni	M?ynarski(, 1968)
Nea Kallikratia, western Chalkidiki Peninsula, Thessaloniki area	Greece	40.31460	23.04620	3.9500	Titanochelon	Titanochelon bacharidisi	(Vlachos, Tsoukala & Corsini, 2014)
Nea Michaniona, western Chalkidiki Peninsula, Thessaloniki area	Greece	40.47310	22.83850	3.9500	Titanochelon	Titanochelon bacharidisi	(Vlachos, Tsoukala & Corsini, 2014)
Milia, Grevena, W Macedonia	Greece	40.17910	21.47560	2.6000	Testudo	Testudo brevitesta	Vlachos & Tsoukala, 2016
Milia, Grevena, W Macedonia	Greece	40.17910	21.47560	2.6000	Titanochelon	Titanochelon sp.	Pérez-Garcia & Vlachos, 2014
Sand Draw local fauna, Brown County, Nebraska	USA	42.70000	-100.00000	3.0000	Hesperotestudo	Hesperotestudo oelrichi	Holman, 1972
Sawrock Canyon local fauna, Seward County, Kansas	USA	37.00000	-100.00000	3.0000	Hesperotestudo	Hesperotestudo riggsi	(Hibbard, 1944)
Cala Es Pous near Ciutadella, Minorca	Spain	40.05000	3.82600	4.4500	Titanochelon	Titanochelon gymneisucs	(Bate, 1914)
Serrat-d'en-Vacquer near Perpignan, Pyrénées-Orientales	France	42.88000	2.88000	3.9000	Titanochelon	Titanochelon perpiniana	(Depéret, 1885)

Table S14 – *continued from previous page*

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Megalo Emvolon 1 (MEV), 20 km SW Thessaloniki	Greece	40.50170	22.81770	3.9000	Testudo	Testudo cf. graeca	Linnaeus, 1758
Megalo Emvolon 1 (MEV), 20 km SW Thessaloniki	Greece	40.50170	22.81770	3.9000	Testudo	Testudo sp.	Linnaeus, 1758
W??e 1	Poland	52.35000	22.15000	3.9000	Testudo	Testudo sp.	Linnaeus, 1758
Punta Nati near Ciutadella, Minorca	Spain	40.05060	3.82570	4.4500	Titanochelon	Titanochelon gymnesicus	(Bate, 1914)
Lee Creek Mine, Yorktown Sample, Beaufort County, North Carolina	USA	35.40000	-76.80000	4.5000	Geochelone	Geochelone sp.	Fitzinger, 1835
Rexroad local fauna (Fox Canyon locality 3), Meade County, Kansas	USA	37.20000	-100.30000	4.5500	Caudochelys	Caudochelys rexroadensis	(Oelrich, 1952)
Rexroad local fauna (Fox Canyon locality 3), Meade County, Kansas	USA	37.20000	-100.30000	4.5500	Hesperotestudo	Hesperotestudo riggsi	(Hibbard, 1944)
Santee, Knox County, Nebraska	USA	42.00000	-97.00000	5.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
W??e 1	Poland	52.35000	22.15000	3.9000	Eurotestudo	Eurotestudo globosa	(Portis, 1890)
W??e 1	Poland	52.35000	22.15000	3.9000	Eurotestudo	Eurotestudo hermanni	(Gmelin, 1789)
Farola Monte Hermoso, 12 km SW Pehuen Có Beach, Buenos Aires Province	Argentina	-39.00830	-61.50280	3.9650	Testudo	Chelonoidis australis	Linnaeus, 1758 (p. 198)
Palomas Creek Fauna, Palomas Basin, Sierra County, New Mexico	USA	33.05000	-107.30000	2.8000	Gopherus	Gopherus sp.	Rafinesque, 1832
UCMP V6327, La Porteria, Kettleman Hills, Kings County, California	USA	35.90000	-119.90000	3.1000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Laetoli	Tanzania	-2.99620	35.35240	3.2550	Geochelone	Geochelone laetoliensis	Meylan & Auffenberg, 1987
Laetoli	Tanzania	-2.99620	35.35240	3.2550	Stigmochelys	Stigmochelys brachygularis	(Meylan & Auffenberg, 1987)
Sand Draw local fauna, Brown County, Nebraska	USA	42.70000	-100.00000	3.0000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Sand Draw local fauna, Brown County, Nebraska	USA	42.70000	-100.00000	3.0000	Caudochelys	Caudochelys sp.	Auffenberg, 1963
Cuchillo Negro Creek Local Fauna, Engle Basin, Sierra County, New Mexico	USA	33.19500	-107.25700	3.1000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Elephant Butte Lake Fauna, Engle Basin, Sierra County, New Mexico	USA	33.20000	-107.20000	3.1000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Las Higueruelas, Alcolea de Calatrava, Ciudad Real	Spain	38.98830	-4.08570	3.2000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Las Higueruelas, Alcolea de Calatrava, Ciudad Real	Spain	38.98830	-4.08570	3.2000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Dikika (DIK-1)	Ethiopia	11.10000	40.60000	3.3300	Centrochelys	Centrochelys sp.	Gray, 1872
Jambol, Tenovo or General Insovo sandstone quarries	Bulgaria	42.48000	26.51000	4.4500	Geochelone	Geochelone sp.	Fitzinger, 1835
Montpellier, Hérault	France	42.60840	3.87930	4.4500	Testudo	Testudo sp.	Linnaeus, 1758
Perpignan et sa région, Pyrénées-Orientales	France	42.68330	2.88330	3.9000	Eurotestudo	Eurotestudo pyrenaica	(Depéret & Donnezan, 1890)
Perpignan et sa région, Pyrénées-Orientales	France	42.68330	2.88330	3.9000	Titanochelon	Titanochelon perpiniana	(Depéret, 1885)
Serrat-d'en-Vacquer near Perpignan, Pyrénées-Orientales	France	42.88000	2.88000	3.9000	Eurotestudo	Eurotestudo pyrenaica	(Depéret & Donnezan, 1890)
Musaid right bank of Big Salcha River, Vulkaneshty Region	Moldova	45.82060	28.50500	3.9000	Testudo	Testudo sp.	Linnaeus, 1758
Novo-Savitzkaya	Moldova	46.80610	29.86860	3.9000	Testudo	Testudo cernovi	Khozatskiy, 1948
Liventsovka horizon 5, near Rostov-on-Don	Russia	47.24000	39.71000	3.7000	Testudo	Testudo sp.	Linnaeus, 1758
Novopetrovka	Ukraine	47.04170	29.86500	4.4500	Testudo	Testudo sp.	Linnaeus, 1758
Çalta	Turkey	40.25000	32.55000	4.0000	Testudo	Testudo sp.	Linnaeus, 1758
Ptolemais 6A = Notio 1 (NO 1)	Greece	40.50000	21.75000	3.9400	gen.	gen. indet.	Gray, 1825
Ptolemais 6B = Notio 1	Greece	40.50000	21.75000	3.9400	gen.	gen. indet.	Gray, 1825
Ptolemais 6C = Notio 1 (NO 1)	Greece	40.50000	21.75000	3.9400	gen.	gen. indet.	Gray, 1825
Tchelopetchene 1 (sand facies)	Bulgaria	42.73330	23.48330	4.6500	Testudo	Testudo sp.	Linnaus, 1758
El Arquillo 3 (ARQ3)	Spain	40.40000	-1.10000	4.0300	Geochelone	Geochelone sp.	Fitzinger, 1835

Table S14 – *continued from previous page*

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Kanapoi	Kenya	3.54000	35.87000	4.0700	Geochelone	Geochelone crassa	(Andrews, 1914)
Kanapoi	Kenya	3.54000	35.87000	4.0700	Geochelone	Geochelone cf. sp.	Fitzinger, 1835
Kanapoi	Kenya	3.54000	35.87000	4.0700	Stigmochelys	Stigmochelys sp.	Gray, 1873
Nikolskoe	Moldova	46.87550	29.86140	4.7500	Testudo	Testudo sp.	Linnaeus, 1758
Aramis, ARA-VP-6/500, Middle Awash Valley	Ethiopia	9.00000	40.16670	4.4000	Geochelone	Geochelone sp.	Fitzinger, 1835
Devil's Nest Airstrip, Knox County, Nebraska	USA	42.00000	-97.00000	5.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
Devil's Nest Airstrip, Knox County, Nebraska	USA	42.00000	-97.00000	5.0000	Hesperotestudo	Hesperotestudo aff. sp.	Williams, 1950
Santee, Knox County, Nebraska	USA	42.00000	-97.00000	5.0000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Devil's Nest Airstrip, Knox County, Nebraska	USA	42.00000	-97.00000	5.0000	Caudochelys	Caudochelys aff. rexroadensis	(Oelrich, 1952)
Kuchurgan	Ukraine	46.75000	29.98330	5.0500	Testudo	Testudo cernovi	Khozatskiy, 1948
Kuchurgan	Ukraine	46.75000	29.98330	5.0500	Titanochelon	Titanochelon ex. gr. perpiniana	(Depéret, 1885)
Osztramos 1C	Hungary	48.52500	20.75830	5.1650	Testudo	Testudo ? sp.	Linnaeus, 1758
Buis Ranch Local Fauna, Beaver County, Oklahoma	USA	36.80000	-100.50000	7.6000	Hesperotestudo	Hesperotestudo riggsi	(Hibbard, 1944)
UCMP V71137, Turlock Lake 10, Stanislaus County, California	USA	37.60000	-120.60000	5.5000	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1878)
UCMP V81248, Turlock Lake 11, Stanislaus County, California	USA	37.60000	-120.60000	5.5000	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1878)
Allatini, eastern part of Thessaloniki, western Chalkidiki peninsula	Greece	40.58990	22.97160	5.5000	Testudo	Testudo graeca	Linnaeus, 1758
Pylea, eastern part of Thessaloniki, western Chalkidiki peninsula	Greece	40.59940	22.98760	5.5000	Testudo	Testudo graeca	Linnaeus, 1758
As Sahabi	Libya	30.16670	20.83330	5.5000	Centrochelys	Centrochelys aff. sulcata	(Miller, 1779)
Yepómera, Chihuahua	Mexico	28.80000	-108.00000	4.7500	Gopherus	Gopherus cf. sp.	Rafinesque, 1832
UCMP V65711, Turlock Lake General, Stanislaus County, California	USA	37.60000	-120.60000	5.5000	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1878)
UCMP V6878, Turlock Lake, Stanislaus County, California	USA	37.60000	-120.60000	5.5000	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1878)
UCMP V71138, Dallas-Warner Reservoir 1, Stanislaus County, California	USA	37.60000	-120.60000	5.5000	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1878)
UCMP V90007, Turlock Lake 13, Stanislaus County, California	USA	37.60000	-120.60000	5.5000	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1878)
UCMP V90008, Turlock Lake 14, Stanislaus County, California	USA	37.60000	-120.60000	5.5000	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1878)
Withlacoochee River Site 4A, Marion County, Florida	USA	28.80000	-82.30000	5.5000	Geochelone	Geochelone sp.	Fitzinger, 1835
Kohfidisch	Austria	47.16670	16.35000	8.7500	gen.	-	Gray, 1825
Kohfidisch	Austria	47.16670	16.35000	8.7500	Testudo	Testudo burgenlandica	Bachmayer & Mlynarski, 1983
Teiritzberg (T1 = 001/D/C), Korneuburg Basin, Lower Austria	Austria	48.36670	16.33330	16.5500	Paleotestudo	Paleotestudo sp.	Lapparent de Broin, 2000
Eggenburg-Schindergraben, Lower Austria	Austria	48.63330	15.81700	19.9650	Testudo	Testudo kalksburgensis	Toula, 1896
Holzmannsdorfberg bei St. Marein	Austria	47.01670	15.66670	10.7500	Testudo	Testudo sp.	Linnaeus, 1758
McGehee Farm near Newberry, Alachua County, Florida	USA	29.70000	-82.60000	10.9500	Hesperotestudo	Hesperotestudo alleni	(Auffenbgerg, 1996)
Wessington Springs local fauna, Jerauld County, South Dakota	USA	44.10000	-98.60000	11.5000	gen.	gen. indet.	Gray. 1825
Iron Canyon Fauna, Mojave Desert, Kern County, California	USA	35.30000	-118.50000	11.8500	Gopherus	Gopherus ? sp.	Rafinesque, 1832
Chañe, Segovia	Spain	41.33890	-4.42500	13.8000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Cerro del Otero, Palencia	Spain	42.01010	-4.52870	12.5000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
La Ciesma 1, Aragón	Spain	41.86000	-1.80000	12.2000	gen.	gen. indet.	Gray, 1825
La Ciesma 1, Aragón	Spain	41.86000	-1.80000	12.2000	Titanochelon	Titanochelon cf. bolivari	(Hernández Pacheco, 1971)

Table S14 – *continued from previous page*

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
El Buste, Aragón	Spain	41.88600	-1.60290	12.4000	Paleotestudo	Paleotestudo cf. sp.	Lapparent de Broin, 2000
Steinheim a. Albuch	Germany	48.69390	10.06780	13.0000	Testudo	Testudo steinheimensis	Staesche, 1931
Hohenhöwen, Engen, Hegau, southwestern Germany	Germany	47.83560	8.74900	13.0000	Paleotestudo	Paleotestudo antiqua	(Bronn, 1831)
Wien-Kalksburg	Austria	48.12000	16.26000	14.5000	Testudo	Testudo kalksburgensis	Toula, 1896
Belomechetskaya	Russia	44.40000	41.93330	14.0000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Sansan, Gers (lake)	France	43.90000	-0.50000	13.6000	Paleotestudo	Paleotestudo antiqua	(Bronn, 1831)
Alcalá de Henares, Cerro del Viso (Barranco de los Mártires y Santos de la Humosa), Madrid	Spain	40.48820	-3.31340	15.0000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1917)
Vallecas, Madrid	Spain	40.38150	-3.62240	15.0000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Tarazona de Aragón	Spain	41.90250	-1.72520	14.7000	gen.	gen. indet.	Gray, 1825
Tarazona de Aragón	Spain	41.90250	-1.72520	14.7000	Paleotestudo	Paleotestudo cf. sp.	Lapparent de Broin, 2000
Randle Cliff, Calvert County, Maryland	USA	38.66650	-76.52980	15.4000	Floridemys	Floridemys hurdi	Weems & George, 2013
Burgerbachtobel 1 near Wippertsweiler	Germany	47.80180	9.45040	15.0000	Titanochelon	Titanochelon vitodurana	(Biedermann, 1862)
Monteagudo, Aragón	Spain	41.96270	-1.69220	16.4000	gen.	gen. indet.	Gray, 1825
Sandelzhausen	Germany	48.62830	11.79600	16.3700	Testudo	Testudo rectogularis	Schleich, 1981
Sandelzhausen unterer Geröllmergel (B)	Germany	48.62830	11.79600	16.3700	Titanochelon	Titanochelon cf. perpiniana	(Depéret, 1885)
Kirchdorf an der Iller	Germany	48.07280	10.14240	16.6500	Geochelone	Geochelone sp.	Fitzinger, 1835
Arrisdrift	Namibia	-28.55000	16.50000	17.2500	Mesocherus	Mesocherus orangeus	Lapparent de Broin, 2003
Arrisdrift	Namibia	-28.55000	16.50000	17.2500	Namibchersus	Namibchersus aff. namaquensis	(Stromer, 1926)
Thomas Farm Local Fauna, Gilchrist County, Florida	USA	29.70000	-82.60000	18.5000	Geochelone	Geochelone tedwhitei	(Williams, 1953)
Auchas	Namibia	-28.55000	16.50000	18.0000	Namibchersus	Namibchersus namaquensis	(Stromer, 1926)
Elisabethfeld (= Elisabeth Bay) area, northern Sperrgebiet	Namibia	-26.91610	15.18380	19.5000	Namibchersus	Namibchersus namaquensis	(Stromer, 1926)
Samos 1	Greece	37.80000	26.90000	6.2500	Titanochelon	Titanochelon schafferi	(Szalai, 1931)
Santa-Vittoria d'Alba	Italy	44.70000	7.93330	6.1650	Testudo	Testudo sp.	Linnaeus, 1758
Torrente Melacce, Cinigiano (GR)	Italy	42.88330	11.40000	5.8150	Testudo	Testudo sp.	Linnaeus, 1758
San Nicolas, UCMP locality V4536	Colombia	3.20000	-75.20000	8.5000	Geochelone	Geochelone hesterna	Auffenberg, 1971
Prottes	Austria	48.38960	16.74540	8.3000	Hadrianus	Hadrianus sp.	Cope, 1872
Prottes	Austria	48.38960	16.74540	8.3000	Testudo	Testudo cf. promarginata	Reinach, 1900
Prottes	Austria	48.38960	16.74540	8.3000	Testudo	Testudo sp.	Linnaeus, 1758
Crevillente 2	Spain	38.27000	-0.80000	8.3000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Crevillente 2	Spain	38.27000	-0.80000	8.3000	Testudo	Testudo catalaunica	(Bataller, 1926)
UCMP V-3952, Ingram Creek site 8, Stanislaus County, California	USA	37.60000	-120.80000	9.5000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Ricardo Fauna, Mojave Desert, Kern County, California	USA	35.30000	-118.50000	10.1000	Geochelone	Geochelone sp.	Fitzinger, 1835
Ricardo Fauna, Mojave Desert, Kern County, California	USA	35.30000	-118.50000	10.1000	Gopherus	Gopherus ? sp.	Rafinesque, 1832
El Lugarejo (Arévalo), Ávilla, Castilla	Spain	41.05600	-4.71690	10.2500	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Hostalets de Piérola, Barcelone province, Cataluña, Vallés-Penedés basin	Spain	41.53490	1.76850	10.4000	Cheirogaster	Cheirogaster richardi	(Bergounioux, 1938)
Kohfidisch	Austria	47.16670	16.35000	8.7500	Protestudo	Protestudo csakvarensis	Szalai, 1934)
Teiritzberg (T1 = 001/D/C), Korneuburg Basin, Lower Austria	Austria	48.36670	16.33330	16.5500	gen.	gen. indet.	Gray, 1825

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Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Fuensaldaña, Valladoid	Spain	41.70800	-4.76420	12.5000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Illescas, Toledo	Spain	40.12650	-3.84890	12.5000	Paleotestudo	Paleotestudo antiqua	(Bronn, 1831)
Illescas, Toledo	Spain	40.12650	-3.84890	12.5000	Titanochelon	Titanochelon cf. bolivari	(Hernández Pacheco, 1971)
La Cistérniga, Valladolid	Spain	41.59730	-4.65490	12.5000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Puente de la Princessa, Madrid	Spain	40.38890	-3.69840	14.0000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Villalcón, Palencia	Spain	42.29320	-4.85520	14.0000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Coca cemetery, Segovia	Spain	41.21940	-4.52880	12.8500	Titanochelon	Titanochelon cf. bolivari	(Hernández Pacheco, 1971)
Przeworno I	Poland	50.68050	17.18330	15.0000	Testudo	Testudo sp.	Linnaeus, 1758
Barajas, Madrid	Spain	40.48390	-3.56790	15.0000	Paleotestudo	Paleotestudo antiqua	(Bronn, 1831)
Barajas, Madrid	Spain	40.48390	-3.56790	15.0000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Ciudad Universitaria, Madrid	Spain	40.44670	-3.73020	15.0000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Henares 1, Los Santos de la Humosa, Madrid	Spain	40.45060	-3.44270	15.0000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Puente de los Franceses, Madrid	Spain	40.43370	-3.73580	15.0000	Paleotestudo	Paleotestudo cf. antiqua	(Bronn, 1831)
Puente de los Franceses, Madrid	Spain	40.43370	-3.73580	15.0000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Vallecas, Madrid	Spain	40.38150	-3.62240	15.0000	Paleotestudo	Paleotestudo cf. antiqua	(Bronn, 1831)
Egelhoff Ranch Local Fauna, Keya Paha County, Nebraska	USA	42.00000	-100.00000	14.5000	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1863)
Plum Point, Calvert County, Maryland	USA	38.00000	-76.00000	15.0000	Caudochelys	Caudochelys ducateli	(Collins & Lynn, 1936)
Furth 460m	Germany	48.60000	12.03330	15.2250	Testudo	Testudo sp.	Linnaeus, 1758
Puttenhausen E	Germany	48.61220	11.77730	16.5000	Testudo	Testudo sp.	Linnaeus, 1758
Puttenhausen B	Germany	48.61220	11.77730	16.8000	Testudo	Testudo sp.	Linnaeus, 1758
Puttenhausen A	Germany	48.61220	11.77730	16.9000	Testudo	Testudo sp.	Linnaeus, 1758
Ba?a Dolina in Ve?ký Krtíš	Slovakia	48.20730	19.34780	17.4000	gen.	gen. Indet.	Gray, 1825
Fosso della Fittaia 2013, Baccinello-Cinigiano Basin, Tuscany	Italy	42.68330	11.33330	7.3500	Testudo	Testudo sp.	Linnaeus, 1758
Prottes	Austria	48.38960	16.74540	8.3000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Crevillente 2	Spain	38.27000	-0.80000	8.3000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Autovía A6, Arévola, Ávila	Spain	41.05270	-4.70010	10.2500	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Hammerschmiede 1	Germany	47.92730	10.59150	11.1800	Testudo	Testudo sp.	Linnaeus, 1758
Hammerschmiede 5 (HAM 5)	Germany	47.92730	10.59150	11.6200	Testudo	Testudo sp.	Linnaeus, 1758
Salinas Grandes de Hidalgo, Atreucó, La Pampa	Argentina	-37.20000	-63.60000	7.9000	Chelonoidis		Fitzinger, 1835
Toros-Menalla, Djurab desert (TM 266)	Chad	16.25000	17.48750	7.0400	gen.	gen. indet.	Gray, 1826
Patos (= Acre 6, LACM Locality 4611), Assisbrasil County, Acre	Brazil	-10.90000	-69.90000	9.4300	Chelonoidis	Chelonoidis sp.	Fitzinger, 1835
Götzendorf	Austria	48.01670	16.58330	9.8600	Testudo	Testudo sp.	Linnaeus, 1758
Vösendorf-Brunn, near Wien	Austria	48.20000	16.36000	10.3500	Testudo	Testudo sp.	Linnaeus, 1758
Atzelsdorf, 35 km NE Vienna, Lower Austria	Austria	48.51030	16.54420	11.1500	Testudo	Testudo cf. burgenlandica	Bachmayer & Mlynarski (1983)
Eibiswald	Austria	46.68780	15.24890	15.2200	Paleotestudo	Paleotestudo mellingi	Peters, 1868
Karingarab D. wardi level	Namibia	-27.00000	15.50000	11.0000	Namibchersus	Namibchersus sp.	Lapparent de Broin F.de, 2003: Miocene Chelonians
North of Gypsum Plate Pan D. wardi level	Namibia	-27.00000	15.50000	12.0000	Namibchersus	Namibchersus sp.	Lapparent de Broin, 2003

Table S14 – *continued from previous page*

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Rooilepel D. wardi level	Namibia	-27.00000	15.50000	11.0000	Namibchersus	Namibchersus sp.	Lapparent de Broin, 2003
Tataru?-Brusturi	Romania	47.15000	22.25000	10.2500	Testudo	Testudo sp.	Linnaeus, 1758
Jebel Semama	Tunisia	35.33330	8.83330	10.0000	Testudo	Testudo semenensis	Bergounioux, 1945-1955
Küçükçekmece	Turkey	40.98330	28.76670	10.6500	Testudo	Testudo cf. sp.	Linnaeus, 1758
Höwenegg	Germany	47.90000	8.75000	10.3000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1953
Höwenegg	Germany	47.90000	8.75000	10.3000	Testudo	Testudo sp.	Linnaeus, 1758
Ecoparc de Can Mata (els Hostalets de Pierola), Vallés-Penedés basin, Cataluña	Spain	41.53280	1.80320	10.7000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Petersbuch 14	Germany	48.97790	11.19090	11.3000	gen.	gen. indet	Gray, 1825
Sant Quirze de Terrassa/de Galliners (del Vallès), Barcelona	Spain	41.38330	2.18330	11.3000	Paleotestudo	Paleotestudo antiqua	(Bronn, 1831)
Gritsev (Khmelnitsk area, Shepetovski district)	Ukraine	49.97500	27.16000	11.5270	Protestudo	Protestudo sp.	Chkhikvadze, 1970
Sofca (125) - F 434	Turkey	39.16670	30.18330	12.1500	gen.	gen. indet.	Gray, 1825
Can Mata (els Hostalets de Pierola), Vallés-Penedés basin, Cataluña	Spain	41.51920	1.72830	11.9000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Nombrevilla 2. NOM 2	Spain	41.07000	-1.21000	11.6900	Paleotestudo	Paleotestudo cf. antiqua	(Bronn, 1831)
Gratkorn, clay pit St. Stefan, Styria	Austria	47.13720	15.34890	12.1000	Testudo	Testudo kalksburgensis	Toula, 1896
Gratkorn, clay pit St. Stefan, Styria	Austria	47.13720	15.34890	12.1000	Testudo	Testudo cf. steinheimensis	Staesche, 1931
Bois de Fabregues, Aups, Var	France	43.62840	6.22480	12.5000	Cheirogaster	Cheirogaster cf. sp.	Bergounioux, 1935
Abocador de Can Mata (els Hostalets de Pierola)(ACM/BDA), Vallés-Penedés basin, Cataluña	Spain	41.51920	1.72830	12.7500	Cheirogaster	Cheirogaster df. richardi	(Bergounioux, 1931)
La-Grive-Saint-Alban (M+L7), Isère	France	45.58000	5.26000	12.6000	Testudo	Testudo ex. gr. antiqua	Bronn, 1831
Toril 3A. TOR 3A, near Daroca, Zaragoza province	Spain	41.13330	-1.38330	12.1300	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Toril 3B. TOR 3B, near Daroca, Zaragoza province	Spain	41.13330	-1.38330	12.1400	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Oehningen, oberer Bruch, Schienerberg N Oehningen-Wangen	Germany	47.67600	8.92510	12.8500	Testudo	Testudo scutella	(Meyer, 1845)
Steinheim a. Albuch	Germany	48.69390	10.06780	13.0000	Testudo	Testudo sp.	Linnaeus, 1758
Fort Niobrara, UCMP V-3218, Cherry County, Nebraska	USA	42.80000	-100.80000	12.9500	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1863)
Valentine Railway Quarry A, UNSM Cr 12, Cherry County, Nebraska	USA	42.80000	-100.80000	12.9000	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1878)
Valentine Railway Quarry B, UNSM Cr 13, Cherry County, Nebraska	USA	42.80000	-100.80000	12.9000	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1878)
Coca-Villeguillo, Segovia	Spain	41.25000	-4.57750	13.5000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Uitikon-Schlieren, quarry on road, near Zürich	Switzerland	47.38200	8.44730	13.5000	Titanochelon	Titanochelon vitodurana	(Biedermann, 1862)
Veltheim-Winterthur	Switzerland	47.51240	8.71700	13.5000	Titanochelon	Titanochelon vitodurana	(Biedermann, 1862)
Myers Farm, Webster County, Nebraska	USA	40.00000	-98.00000	13.1000	Geochelone	Geochelone sp.	Fitzinger, 1835
Myers Farm, Webster County, Nebraska	USA	40.00000	-98.00000	13.1000	Hesperotestudo	Hesperotestudo cf. orthopygia	(Cope, 1878)
Mynsualmas	Kazakhstan	45.90000	55.25000	13.7000	gen.	gen. indet.	Gray, 1825
DISC Cluster Sites, conglomerate, Fort Polk, Louisiana	USA	31.08030	-93.20120	13.4000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Goldberg near Pflaumloch, Nördlinger Ries (without number)	Germany	48.85970	10.47530	14.1500	Testudo	Testudo sp.	Linnaeus, 1758
Kirrberg b. Balzhausen - Tongrube	Germany	48.22500	10.50140	14.1500	Geochelone	Geochelone sp.	Fitzinger, 1835
Kirrberg b. Balzhausen - Tongrube	Germany	48.22500	10.50140	14.1500	Testudo	Testudo sp.	Linnaeus, 1758
Petersbuch 31 - oben	Germany	48.97790	11.19090	13.6000	gen.	gen. indet	Gray, 1825
Ursberg (nördliche Sandgrube)	Germany	48.26110	10.45170	14.1500	Testudo	Testudo sp.	Linnaeus, 1758

Table S14 – *continued from previous page*

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Somosaguas Sur, Madrid Basin	Spain	40.42440	-3.79230	13.9000	gen.	gen. indet.	Gray, 1825
Hottell Ranch rhino quarries, Banner County, Nebraska	USA	41.50000	-103.80000	15.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
Lassé, Maine-et-Loire	France	47.53780	0.01160	15.0000	Testudo	Testudo promarginata	Reinach, 1900
Pontigné-les-Buisseneaux, Maine-et-Loire	France	47.54000	-0.04010	15.0000	Testudo	Testudo promarginata	Reinach, 1900
Vieux-Collonges, Saint-Cyr-au-Mont-d'Or, Rhône, France	France	45.75000	4.85000	15.7500	gen.	gen. indet	Gray, 1825
Vieux-Collonges, Saint-Cyr-au-Mont-d'Or, Rhône, France	France	45.75000	4.85000	15.7500	Testudo	Testudo sp.	Linnaeus, 1758
Calle Moratines, Madrid	Spain	40.40270	-3.70360	15.0000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Calle Paseo de Moret, Madrid	Spain	40.43400	-3.72190	15.0000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
La Barranca, Zaragoza	Spain	41.60000	-0.90000	14.5000	Paleotestudo	Paleotestudo cf. antiqua	(Bronn, 1831)
Paracuellos de Jarama, Madrid	Spain	40.50570	-3.53020	15.0000	Titanochelon	Titanochelon cf. bolivari	(Hernández Pacheco, 1971)
Bohlinger Schlucht 6	Germany	47.70600	8.89000	14.3500	gen.	gen. indet	Gray, 1825
Stätzling	Germany	48.40000	10.96670	14.5000	Paleotestudo	Paleotestudo antiqua	(Bronn, 1831)
Bonlanden, Illertal	Germany	48.06860	10.07470	14.5000	Geochelone	Geochelone sp.	Fitzinger, 1835
Bonlanden, Illertal	Germany	48.06860	10.07470	14.5000	Testudo	Testudo sp.	Linnaeus, 1758
Georgensgmünd, Reznat-Altmühl-Stausee	Germany	49.19600	11.01000	14.7500	Testudo	Testudo sp.	Linnaeus, 1758
Hambach 6C	Germany	50.90000	6.45000	14.7000	Testudo	Testudo sp.	Linnaeus, 1758
Unterzell 1a	Germany	48.38330	11.01670	14.5000	Geochelone	Geochelone sp.	Fitzinger, 1835
Norden Bridge Local Fauna, Brown County, Nebraska	USA	42.80000	-100.00000	14.5000	Geochelone	Geochelone nordensis	Holman, 1973
Norden Bridge Local Fauna, Brown County, Nebraska	USA	42.80000	-100.00000	14.5000	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1878)
Laimering 3	Germany	48.38960	11.08850	14.6000	Testudo	Testudo sp.	Linnaeus, 1758
Ziemetshausen 1e	Germany	48.29390	10.53030	14.6000	Testudo	Testudo sp.	Linnaeus, 1758
Dénezé-sous-le-Lude, Maine-et-Loire	France	47.53300	0.13300	15.9000	Testudo	Testudo promarginata	Reinach, 1900
Noyant-sous-le-Lude, Maine-et-Loire	France	47.51700	0.11700	15.9000	Testudo	Testudo promarginata	Reinach, 1900
Pontlevoy-Thenay, Loir-et-Cher	France	47.40000	1.20000	15.4000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Pontlevoy-Thenay, Loir-et-Cher	France	47.40000	1.20000	15.4000	Testudo	Testudo sp.	Linnaeus, 1758
Savigné-sur-Lathan, Indre-et-Loire	France	47.45000	0.31700	15.9000	Testudo	Testudo promarginata	Reinach, 1900
Aresing (shallow lake)	Germany	48.53330	11.30000	20.9000	Testudo	Testudo rectogularis	Schleich, 1981
Edelbeuren-Schlachtberg	Germany	48.08900	10.02330	14.8000	Testudo	Testudo sp.	Linnaeus, 1758
Griesbeckerzell 1a	Germany	48.44680	11.05430	14.8000	Geochelone	Geochelone sp.	Fitzinger, 1835
Griesbeckerzell 1a	Germany	48.44680	11.05430	14.8000	Testudo	Testudo sp.	Linnaeus, 1758
Tobel Oelhalde Nord 1	Germany	48.04130	9.83060	14.8000	Geochelone	Geochelone sp.	Fitzinger, 1835
Tobel Oelhalde Süd	Germany	48.04130	9.83060	14.8000	Geochelone	Geochelone sp.	Fitzinger, 1835
Tobel Oelhalde Süd	Germany	48.04130	9.83060	14.8000	Testudo	Testudo sp.	Linnaeus, 1758
Ziemetshausen 1b	Germany	48.29390	10.53030	14.8000	Geochelone	Geochelone sp.	Fitzinger, 1835
Ziemetshausen 1b	Germany	48.29390	10.53030	14.8000	Testudo	Testudo sp.	Linnaeus, 1758
Ziemetshausen 1g	Germany	48.29390	10.53030	14.8000	gen.	gen. indet.	Gray, 1825
Valdemoros 3B. VA 3B	Spain	41.09000	-1.48200	14.8400	Paleotestudo	Paleotestudo cf. antiqua	(Bronn, 1831)

Table S14 – *continued from previous page*

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Derching 1b (unten)	Germany	48.40910	10.97190	14.9000	Geochelone	Geochelone sp.	Fitzinger, 1835
Edelbeuren-Maurerkopf	Germany	48.09620	10.03110	14.9000	Geochelone	Geochelone sp.	Fitzinger, 1835
Edelbeuren-Maurerkopf	Germany	48.09620	10.03110	14.9000	Testudo	Testudo sp.	Linnaeus, 1758
Castelnau d'Arbieu, Gers	France	43.88330	0.70000	15.8500	Cheirogaster	Cheirogaster cf. sp.	Bergounioux, 1935
Benistobel (Kohltobel)	Germany	47.79570	9.44290	15.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
Biberach-Jordanbad	Germany	48.07480	9.82220	15.5000	Testudo	Testudo sp.	Linnaeus, 1758
Burgerbachtobel 1 near Wippertsweiler	Germany	47.80180	9.45040	15.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
Burgerbachtobel 1 near Wippertsweiler	Germany	47.80180	9.45040	15.0000	Testudo	Testudo sp.	Linnaeus, 1758
Ettishofener Ach between Inntobel and Berg-Ettishofen	Germany	47.82330	9.59010	15.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
Ettishofener Ach between Inntobel and Berg-Ettishofen	Germany	47.82330	9.59010	15.0000	Testudo	Testudo sp.	Linnaeus, 1758
Griesbeckerzell 1b	Germany	48.44680	11.05430	15.0000	Testudo	Testudo sp.	Linnaeus, 1758
Heggbach am Buchhaldenberg, Maselheim, near Biberach	Germany	48.14070	9.88710	15.5000	Geochelone	Geochelone sp.	Fitzinger, 1835
Heggbach am Buchhaldenberg, Maselheim, near Biberach	Germany	48.14070	9.88710	15.5000	Testudo	Testudo sp.	Linnaeus, 1758
Hotterloch-Tobel SW Ravensburg	Germany	47.76960	9.56860	15.0000	Paleotestudo	Paleotestudo antiqua	(Bronn, 1831)
Lattentobel	Germany	47.82910	9.42970	15.0000	Testudo	Testudo sp.	Linnaeus, 1758
Ochsenhausen am Heselsberg, Baustelle Remmele	Germany	48.06870	9.95670	15.0000	Testudo	Testudo sp.	Linnaeus, 1758
Schmalegger Tobel	Germany	47.80930	9.53320	15.0000	Geochelone	Geochelone cf. sp.	Fitzinger, 1835
Schmalegger Tobel	Germany	47.80930	9.53320	15.0000	Testudo	Testudo sp.	Linnaeus, 1758
Ziemetshausen 1d	Germany	48.29390	10.53030	15.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
Ziemetshausen 1f	Germany	48.29390	10.53030	15.0000	gen.	gen. indet.	Gray, 1825
Grund near Hollabrunn (Collection Schaffer)	Austria	48.61670	16.06670	15.1000	Testudo	Testudo sp.	Linnaeus, 1758
Petersbuch 41	Germany	48.97790	11.19090	15.2000	Testudo	Testudo sp.	Linnaeus, 1758
Eberstetten 2 (unter Weg)	Germany	48.53050	11.53690	15.3000	Testudo	Testudo sp.	Linnaeus, 1758
Untereichen-Altenstadt 565m	Germany	48.18330	10.11670	15.3000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Untereichen-Altenstadt 565m	Germany	48.18330	10.11670	15.3000	Testudo	Testudo sp.	Linnaeus, 1758
Coldspring Trinity River Local Fauna, San Jacinto County, Texas	USA	30.00000	-95.00000	15.5000	Hesperotestudo	Hesperotestudo sp.	Williams, 1950
Chesapeak Beach RR Station, Maryland	USA	38.67990	-76.53240	15.7000	Caudochelys	Caudochelys ducateli	(Collins & Lynn, 1936)
Oberbernbach a	Germany	48.47160	11.12840	15.7000	Testudo	Testudo sp.	Linnaeus, 1758
Oggenhof near Häder	Germany	48.35800	10.76060	15.7000	Testudo	Testudo sp.	Linnaeus, 1758
Moratilla 2. MOR 2	Spain	40.63330	-2.03330	15.7800	Paleotestudo	Paleotestudo cf. antiqua	(Bronn, 1831)
Gisseltshausen 1b	Germany	48.71090	12.01800	15.8000	Testudo	Testudo sp.	Linnaeus, 1758
Gisseltshausen 1a	Germany	48.71090	12.01800	15.9000	Testudo	Testudo sp.	Linnaeus, 1758
Häder	Germany	48.35630	10.63890	16.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
Sainbach (bei Ichenhofen)	Germany	48.51670	11.10000	15.9000	Testudo	Testudo sp.	Linnaeus, 1758
Culebra Reach, Station 1998 + 00, 600 feet W of center line of Panama Canal	Panama	9.10000	-79.70000	17.5000	gen.	gen. Indet.	Gray, 1825
Chubut Valley south side between Gaiman and Dolavon, Patagonia	Argentina	-43.28560	-65.58220	19.5000	Testudo	Testudo gringorum	Simpson, 1942 (p. 1-3, fig. 1.2)
Leithagebirge between Au and Loretto	Austria	47.91510	16.53580	18.0000	Testudo	Testudo kalksburgensis	Toula, 1896

Table S14 – *continued from previous page*

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Marsolan, Gers	France	43.95000	0.55000	18.0000	Testudo	Testudo promarginata	Reinach, 1900
Neuville-aux-Bois, Loiret	France	48.06700	2.05000	18.0000	Testudo	Testudo promarginata	Reinach, 1900
Unterempfenbach 1d	Germany	48.63040	11.74730	16.0000	Testudo	Testudo sp.	Linnaeus, 1758
Wackersdorf Westfeld	Germany	49.31670	12.18330	17.0000	Testudo	Testudo sp.	Linnaeus, 1758
Altheim-Breitenlauh 2	Germany	48.32830	9.79170	16.2650	Testudo	Testudo sp.	Linnaeus, 1758
Eggingen-Schleiche B	Germany	48.35220	9.85210	16.2650	Geochelone	Geochelone sp.	Fitzinger, 1835
Eggingen-Schleiche B	Germany	48.35220	9.85210	16.2650	Testudo	Testudo sp.	Linnaeus, 1758
Walda 2 (oben)	Germany	48.61090	11.09080	16.1000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Walda 2 (oben)	Germany	48.61090	11.09080	16.1000	Testudo	Testudo sp.	Linnaeus, 1758
Sandelzhausen	Germany	48.62830	11.79600	16.3700	Titanochelon	Titanochelon cf. perpiniana	(Depéret, 1885)
Sandelzhausen oberer Geröllmergel (D2)	Germany	48.62830	11.79600	16.3700	Testudo	Testudo rectogularis	Schleich, 1981
Sandelzhausen oberer Geröllmergel (E)	Germany	48.62830	11.79600	16.3700	Testudo	Testudo rectogularis	Schleich, 1981
Sandelzhausen unterer Geröllmergel (B)	Germany	48.62830	11.79600	16.3700	Testudo	Testudo rectogularis	Schleich, 1981
Sandelzhausen unterer Geröllmergel (C1)	Germany	48.62830	11.79600	16.3700	Testudo	Testudo rectogularis	Schleich, 1981
Sandelzhausen unterer Geröllmergel (C2)	Germany	48.62830	11.79600	16.3700	Testudo	Testudo rectogularis	Schleich, 1981
Sandelzhausen unterer Geröllmergel (C3/D1)	Germany	48.62830	11.79600	16.3700	Testudo	Testudo rectogularis	Schleich, 1981
Maßendorf	Germany	48.59710	12.44930	16.3000	Geochelone	Geochelone sp.	Fitzinger, 1835
Maßendorf	Germany	48.59710	12.44930	16.3000	Testudo	Testudo sp.	Linnaeus, 1758
Walda 1 (unten)	Germany	48.61090	11.09080	16.3000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Walda 1 (unten)	Germany	48.61090	11.09080	16.3000	Testudo	Testudo sp.	Linnaeus, 1758
San Roque 3. SR 3	Spain	41.10000	-1.49500	16.3300	Geochelone	Geochelone aff. sp.	Fitzinger, 1835
Kleinebersdorf, Wolmuth-Sandgrube (010/G/Liegendes), Korneuburg Basin, Lower Austria	Austria	48.50000	16.40000	16.5500	gen.	-	Gray, 1825
Obergänserndorf (OG2), Korneuburg Basin, Lower Austria	Austria	48.41670	16.36670	16.5500	gen.	gen. indet.	Gray, 1825
Teiritzberg (001/X/C), Korneuburg Basin, Lower Austria	Austria	48.36670	16.33330	16.5500	gen.	gen. indet.	Gray, 1825
Teiritzberg (001/X/C), Korneuburg Basin, Lower Austria	Austria	48.36670	16.33330	16.5500	Paleotestudo	Paleotestudo angustihyoplastralis	
Weinsteig (107), Korneuburg Basin, Lower Austria	Austria	48.45000	16.40000	16.5500	gen.	gen. indet.	Gray, 1825
Weinsteig (107/S/B), Korneuburg Basin, Lower Austria	Austria	48.45000	16.40000	16.5500	gen.	gen. indet.	Gray, 1826
Puttenhausen 2	Germany	48.61220	11.77730	16.4000	Testudo	Testudo sp.	Linnaeus, 1758
Randecker Maar	Germany	48.56670	9.53333	16.8250	Testudo	Testudo sp.	Linnaeus, 1758
Contres, Loir-et-Cher	France	47.41810	1.42870	17.0000	Testudo	Testudo sp.	Linnaeus, 1758
Schießen	Germany	48.29740	10.24320	16.5000	Geochelone	Geochelone sp.	Fitzinger, 1835
Schießen	Germany	48.29740	10.24320	16.5000	Testudo	Testudo sp.	Linnaeus, 1758
Schönenberg near Jettingen	Germany	48.37190	10.40960	16.5000	Geochelone	Geochelone sp.	Fitzinger, 1835
Schönenberg near Jettingen	Germany	48.37190	10.40960	16.5000	Testudo	Testudo sp.	Linnaeus, 1758
Illerkirchberg 1	Germany	48.31000	10.04600	16.8500	Geochelone	Geochelone sp.	Fitzinger, 1835
Illerkirchberg 1	Germany	48.31000	10.04600	16.8500	Testudo	Testudo sp.	Linnaeus, 1758
Langenmosen	Germany	48.60670	11.21410	16.7000	Testudo	Testudo sp.	Linnaeus, 1758

Table S14 – *continued from previous page*

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Eitensheim	Germany	48.82030	11.32030	16.8000	gen.	gen. indet	Gray, 1825
Eitensheim	Germany	48.82030	11.32030	16.8000	Testudo	Testudo sp.	Linnaeus, 1758
Can Mas near El Papiol, Barcelone province, Cataluña, Vallés-Penedés basin	Spain	41.43330	2.01670	17.3000	Paleotestudo	Paleotestudo cf. antiqua	(Bronn, 1831)
Aerotrain a Chevilly pres d'Artenay (Loiret)	France	48.05000	1.85000	17.2500	Testudo	Testudo sp.	Linnaeus, 1758
Baigneaux-en-Beauce (Eure-et-Loir)	France	48.10000	2.15000	17.2500	Paleotestudo	Paleotestudo mellingi	(Peters, 1868)
Suèvres aux Imberts, Loir-et-Cher	France	47.67000	1.47000	17.2500	Ergilemys	Ergilemys bruneti	Broin, 1977
Suèvres aux Imberts, Loir-et-Cher	France	47.67000	1.47000	17.2500	Paleotestudo	Paleotestudo mellingi	(Peters, 1868)
Erkertshofen 1	Germany	48.97970	11.22500	17.2500	Testudo	Testudo sp.	Linnaeus, 1758
Erkertshofen 2	Germany	48.97970	11.22500	17.2500	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Freudenegg 2 Baggersee	Germany	48.33330	10.01670	17.5000	Testudo	Testudo sp.	Linnaeus, 1758
Freudenegg 3 Baggersee	Germany	48.33330	10.01670	17.5000	Geochelone	Geochelone sp.	Fitzinger, 1835
Freudenegg 3 Baggersee	Germany	48.33330	10.01670	17.5000	Testudo	Testudo sp.	Linnaeus, 1758
Gerlenhofen	Germany	48.20000	10.02000	17.2500	Testudo	Testudo sp.	Linnaeus, 1758
Günzburg 2/1 Umgehungsstrasse Sande	Germany	48.45600	10.27680	17.0000	gen.	gen. indet	Gray, 1825
Günzburg 2/2 Umgehungstr höhere Bereiche der Sande	Germany	48.45600	10.27680	17.0000	gen.	gen. indet	Gray, 1825
Günzburg 2/5 Umgehung Sande im Süden Aufschluss	Germany	48.45600	10.27680	17.0000	gen.	gen. indet	Gray, 1825
Günzburg 2/6 Umgehung Sande im Norden Aufschluss	Germany	48.45600	10.27680	17.0000	gen.	gen. indet	Gray, 1825
Petersbuch 4	Germany	48.97790	11.19090	17.5000	Testudo	Testudo sp.	Linnaeus, 1758
Djebel Zelten	Libya	28.50000	20.00000	17.5000	Geochelone	Geochelone sp.	Fitzinger, 1835
Torralba de Ribota (Zaragoza)	Spain	41.58330	-1.00000	18.5050	Paleotestudo	Paleotestudo cf. antiqua	(Bronn, 1831)
La Romieu, Gers	France	44.20000	0.90000	17.2000	gen.	gen. indet.	Gray, 1825
Forsthart	Germany	48.63580	13.03140	17.2000	Testudo	Testudo sp.	Linnaeus, 1758
Béon 1 (Montréal-du-Gers)	France	43.95000	0.20000	17.6500	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Béon 1 (Montréal-du-Gers)	France	43.95000	0.20000	17.6500	Testudo	Testudo sp.	Linnaeus, 1758
Reisensburg near Günzburg	Germany	48.46200	10.31400	17.4500	Geochelone	Geochelone sp.	Fitzinger, 1835
Reisensburg near Günzburg	Germany	48.46200	10.31400	17.4500	Testudo	Testudo sp.	Linnaeus, 1758
Petersbuch 7	Germany	48.97790	11.19090	17.7500	Testudo	Testudo sp.	Linnaeus, 1758
Pamunkey River, between King William and New Kent Counties, Virginia	USA	37.61640	-77.09630	17.7500	Caudochelys	Caudochelys williamsi	(Auffenberg, 1964)
Pollack Farm Site near Cheswold, Kent County, Delaware	USA	39.23460	-75.57270	17.7500	Caudochelys	Caudochelys williamsi	(Auffenberg, 1964)
Rauscheröd near Passau, Bavaria	Germany	48.55650	13.26020	17.7500	Testudo	Testudo sp.	Linnaeus, 1758
Hiwegi loc. R 1	Kenya	-0.40000	34.20000	17.8000	gen.	gen. indet.	Gray, 1825
Hiwegi loc. R 106	Kenya	-0.40000	34.20000	17.8000	gen.	gen. indet.	Gray, 1825
Hiwegi loc. R 3	Kenya	-0.40000	34.20000	17.8000	gen.	gen. indet.	Gray, 1825
Hiwegi loc. R 5	Kenya	-0.40000	34.20000	17.8000	gen.	gen. indet.	Gray, 1825
Mfangano	Kenya	-0.45000	34.05000	17.8000	gen.	gen. indet.	Gray, 1825
Nira and Kachuku near Karungu	Kenya	-0.90000	34.25000	17.8000	Geochelone	Geochelone crassa	(Andrews, 1914)
Rangoye, Uyoma peninsula lake Victoria	Kenya	-0.30000	34.30000	17.8000	gen.	gen. indet.	Gray, 1825

Table S14 – *continued from previous page*

Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Langenau 1	Germany	48.50030	10.12190	17.7750	Geochelone	Geochelone sp.	Fitzinger, 1835
Langenau 1	Germany	48.50030	10.12190	17.7750	Testudo	Testudo sp.	Linnaeus, 1758
Langenau 2	Germany	48.50000	10.10000	17.7750	Geochelone	Geochelone sp.	Fitzinger, 1835
Langenau 2	Germany	48.50000	10.10000	17.7750	Testudo	Testudo sp.	Linnaeus, 1758
Eggingen-Mittelhart	Germany	48.35230	9.85980	17.8750	Geochelone	Geochelone sp.	Fitzinger, 1835
Eggingen-Mittelhart	Germany	48.35230	9.85980	17.8750	Testudo	Testudo sp.	Linnaeus, 1758
Grimmelfingen	Germany	48.22000	9.56000	18.0000	Testudo	Testudo sp.	Linnaeus, 1758
Walangani	Kenya	-0.45000	34.05000	17.9000	gen.	gen. indet.	Gray, 1825
Kiahera loc. R 120	Kenya	-0.40000	34.20000	18.0000	gen.	gen. indet.	Gray, 1825
Chilleurs-aux-Bois, Loiret (Burdigalian)	France	48.06670	2.13330	19.0000	Testudo	Testudo promarginata	Reinach, 1900
Chitenay, Loir-et-Cher	France	47.50000	1.36670	18.5000	Testudo	Testudo cf. promarginata	Reinach, 1900
La Brosse, Maine-et-Loire	France	47.23000	0.22000	19.0000	Testudo	Testudo cf. promarginata	Reinach, 1900
Mauvieres, Marcilly-sur-Maulne, Indre-et-Loire	France	47.55000	0.33000	18.5000	Testudo	Testudo cf. promarginata	Reinach, 1900
Stubersheim 3	Germany	48.59470	9.91390	19.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
Thomas Farm Local Fauna, Gilchrist County, Florida	USA	29.70000	-82.60000	18.5000	Geochelone	Geochelone cf. sp.	Rafinesque, 1832
Baltringen	Germany	48.16670	9.86670	18.6000	Geochelone	Geochelone sp.	Fitzinger, 1835
Baltringen	Germany	48.16670	9.86670	18.6000	Testudo	Testudo sp.	Linnaeus, 1758
Fiskus	Namibia	-26.90000	15.40000	19.5000	Namibchersus	Namibchersus namaquensis	(Stromer, 1926)
Glastal	Namibia	-26.90000	15.40000	19.0000	Namibchersus	Namibchersus sp.	Lapparent de Broin, 2003
Grillental, northern Sperrgebiet	Namibia	-26.98330	15.35000	19.5000	Namibchersus	Namibchersus cf. namaquensis	(Stromer, 1926)
Langental, nothern Sperrgebiet	Namibia	-26.90000	15.40000	19.0000	Namibchersus	Namibchersus sp.	Lapparent de Broin, 2003
Marsland Quadrangle, Box Butte County, Nebraska	USA	42.40000	-103.30000	19.9000	gen.	gen. indet.	Gray, 1825
Auterive, Haute-Garonne	France	43.35060	1.47320	20.7500	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Grépiac, Haute-Garonne	France	43.40490	1.44790	20.7500	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Grépiac, Haute-Garonne	France	43.40490	1.44790	20.7500	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Landes-le-Gaulois, Loir-et-Cher	France	47.65410	1.18380	20.7500	Testudo	Testudo sp.	Linnaeus, 1758
Tréteau, Allier	France	46.36820	3.52490	21.0000	gen.	gen. indet.	Gray, 1825
Barbotan-les-Thermes (Gers)	France	44.20000	0.40000	20.7500	Cheirogaster	Cheirogaster cf. sp.	Bergounioux, 1935
Marcoin, Volvic, Puy-de-Dôme	France	45.87270	3.03950	21.5000	Testudo	Testudo sp.	Linnaeus, 1758
Saint-Gérand-le-Puy, Allier	France	46.25810	3.51200	21.5000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Saint-Gérand-le-Puy, Allier	France	46.25810	3.51200	21.5000	Ergilemys	Ergilemys aff. bruneti	Broin, 1977
Saint-Gérand-le-Puy, Allier	France	46.25810	3.51200	21.5000	Testudo	Testudo promarginata	Reinach, 1900
Wallenried Channel, 10 km N Fribourg	Switzerland	46.88160	7.10650	21.7500	gen.	gen indet.	Gray, 1825
Montaigu-le-Blin, La Chacotte, Allier	France	46.32000	3.52000	22.0000	gen.	gen. indet.	Gray, 1825
Pechbonnieu, Haute-Garonne	France	43.70280	1.46650	22.7500	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Pechbonnieu, Haute-Garonne	France	43.70280	1.46650	22.7500	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Saulcet, Allier	France	46.33000	3.27000	22.5000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972

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Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Toledo Bend Dam, Newton County, Texas	USA	31.00000	-93.00000	23.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
Paulhiac, Lot-et-Garonne	France	44.56190	0.82040	23.0300	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Chiquimil, Catamarca	Argentina	-28.00000	-66.00000	5.5000	Geochelone	Chelonoidis gallardoi	Rovereto, 1914 (p. 115)
Stanianzi	Bulgaria	43.06250	22.92260	6.1650	Testudo	Testudo sp.	Linnaeus, 1758
Brisghella Cava Monticino	Italy	44.21670	11.76670	5.6650	Testudo	Testudo sp.	Linnaeus, 1758
Gretoni, Stazione Monte Amiata (SI)	Italy	42.96670	11.55000	5.8150	Testudo	Testudo sp.	Linnaeus, 1758
Polenzo section along Tanaro River, Verduno, Piedmont Italy	Italy	44.68580	7.93140	5.4400	Testudo	Testudo sp.	Linnaeus, 1758
Altan-Teli Oshi horizon (Dzereg valley)	Mongolia	47.10000	93.16670	8.3150	Ergilemys	Ergilemys devjaktini	(Khozatskiy & Narmandakh, 1975)
Polgárdi 2	Hungary	47.05000	18.30000	5.7500	Testudo	Testudo sp.	Linnaeus, 1758
Autovía A-30, Murcia	Spain	37.99100	-1.14570	6.3000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Casa Castillo near Jumilla, Murcia	Spain	38.46470	-1.42310	6.3000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Tudorovo	Moldova	46.43500	30.04250	6.3000	Protestudo	Protestudo bessarabica	(Riabinin, 1918)
Venta del Moro (Cabriel Basin)	Spain	39.48330	-1.35000	5.8000	gen.	gen. indet.	Gray, 1825
Kuyalnik	Ukraine	46.56000	30.74000	6.3000	Testudo	Testudo sp.	Linnaeus, 1758
Shkodova Gora	Ukraine	46.46670	30.73330	6.0250	Testudo	Testudo sp.	Linnaeus, 1758
Cliffs in the Paraná eastern riverside near Paraná, Entre Ríos	Argentina	-31.70000	-60.40000	7.5000	gen.	-	Gray, 1825 (p. 210)
Megalo Rema near Paleomilos	Greece	38.45000	22.02000	6.5000	Testudo	Testudo marmorum	Gaudry, 1862
Cava Monticino, near Brisigella, Emilia-Romana	Italy	44.21670	11.76670	8.5000	Testudo	Testudo sp.	Linnaeus, 1758
Lothagam 1	Kenya	2.88300	36.06600	6.5000	Geochelone	Geochelone cf. sp.	Fitzinger, 1835
Lothagam 2	Kenya	2.88300	36.06600	6.5000	Geochelone	Geochelone cf. sp.	Fitzinger, 1835
Lukeino	Kenya	0.80000	35.90000	6.3000	gen.	gen. indet.	Gray, 1825
Barranco del Cigarrón (B-Cg1), S El Palmar, Murcia	Spain	37.91510	-1.17080	6.5000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Hamra	United Arabian Emirates	23.10000	52.52500	7.0000	Centrochelys	Centrochelys aff. sulcata	(Miller, 1779)
Jebel Dhannah	United Arabian Emirates	24.15000	52.60000	7.0000	Centrochelys	Centrochelys aff. sulcata	(Miller, 1779)
Kihal	United Arabian Emirates	24.12000	52.85000	7.0000	Centrochelys	Centrochelys aff. sulcata	(Miller, 1779)
Shuwaihat	United Arabian Emirates	24.10000	52.44000	7.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
El Hatillo, 1.5 km north of, Falcón State	Venezuela	11.22000	-70.23000	8.8000	gen.	gen. indet.	Gray, 1825
Bajo Giuliani, La Pampa	Argentina	-36.68100	-64.37500	7.9000	Chelonoidis	Chelonoidis sp.	Fitzinger, 1835 (p. 112)
Quehué, La Pampa	Argentina	-37.12640	-64.50890	7.9000	Chelonoidis		Fitzinger, 1835
Tardosbánya 3	Hungary	47.66670	18.45000	7.2500	Testudo	Testudo sp.	Linnaeus, 1758
Chimishlia	Moldova	46.52000	28.78420	7.0400	Protestudo	Protestudo bessarabica	(Riabinin, 1918)
Taraklia	Moldova	46.22000	28.22670	7.0400	Protestudo	Protestudo bessarabica	(Riabinin, 1918)
Azmaka quarry 2.5 km NNE Chirpan	Bulgaria	42.23710	25.33580	7.0000	Testudo	Testudo marmorum	Gaudry, 1862
Morskaya 2 locality of the Sea of Azov region	Russia	47.28330	39.10000	7.2500	gen.	gen. Indet.	Gray, 1825
Kalimantsi 2-4	Bulgaria	41.45750	23.47390	7.6000	Testudo	Testudo cf. antiqua	Bronn, 1831
Kalimantsi 2-4	Bulgaria	41.45750	23.47390	7.6000	Testudo	Testudo sp.	Linnaeus, 1758
Montagne du Lubéron à Cucuron, Vaucluse et Alpes-de-Haute-Provence	France	43.79500	5.45000	7.5000	Testudo	Testudo sp.	Linnaeus, 1758

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Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Montagne du Lubéron à Cucuron, Vaucluse et Alpes-de-Haute-Provence	France	43.79500	5.45000	7.5000	Titanochelon	Titanochelon leberonensis	(Depéret, 1890)
Aubignas 1+2, Ardèche	France	44.58330	4.61670	8.0250	Testudo	Testudo amberiacensis	Deperet, 1894
Chobruchi	Moldova	46.60030	29.70830	7.3650	Protestudo	Protestudo bessarabica	(Riabinin, 1918)
Novoelizavetovka	Ukraine	47.15000	30.40550	7.3300	Protestudo	Protestudo bessarabica	(Riabinin, 1918)
Yurievka	Ukraine	46.94560	36.27500	8.0750	gen.	gen. indet.	Gray, 1825
Ambérieu-en-Bugey, Ain	France	45.95000	5.35000	8.5000	Testudo	Testudo amberiacensis	Deperet, 1894
Csákvár, Esterh?y Cave, Fejér Province	Hungary	47.40000	18.45000	8.2000	Protestudo	Protestudo csakvarensis	(Szalai, 1934)
Dorn-Dürkheim, Giloth Quarry, about 25 km S Mainz	Germany	49.76860	8.26970	8.3000	Testudo	Testudo sp.	Linnaeus, 1758
Belka	Ukraine	46.89400	30.42000	7.9000	Protestudo	Protestudo bessarabica	(Riabinin, 1918)
Saint-Bauzile, Ardèche	France	44.68050	4.68710	8.5000	Testudo	Testudo sp.	Linnaeus, 1758
Rooilepel D. laini level	Namibia	-27.00000	15.50000	8.0000	Namibchersus	Namibchersus sp.	Lapparent de Broin, 2003
Kamenica nad Hronom	Slovakia	47.83150	18.72380	9.5000	Testudo	Testudo aff. sp.	Linnaeus, 1758
Grebeniki 1	Ukraine	46.89200	29.82500	8.1500	Protestudo	Protestudo bessarabica	(Riabinin, 1918)
Dove Spring Fauna, Mojave Desert, Kern County, California	USA	35.30000	-118.50000	8.5000	Geochelone	Geochelone sp.	Fitzinger, 1835
Dove Spring Fauna, Mojave Desert, Kern County, California	USA	35.30000	-118.50000	8.5000	Gopherus	Gopherus ? sp.	Rafinesque, 1832
Kainary	Moldova	46.67890	29.04610	8.4000	Protestudo	Protestudo sp.	(Chkhikvadze, 1970)
Novoukrainka 1 (= Budenovka)	Ukraine	46.81500	30.28300	8.1500	Protestudo	Protestudo bessarabica	(Riabinin, 1918)
Montredon, Aude	France	43.23600	2.38820	8.9500	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Udabno	Georgia	41.49220	45.38670	8.9500	Centrochelys	Centrochelys sp.	Gray, 1872
Krivoj Rog	Ukraine	47.91670	33.35000	8.9500	Testudo	Testudo ? sp.	Linnaeus, 1758
Sabadell	Spain	41.55000	2.10000	10.0000	Paleotestudo	Paleotestudo ? antiqua	(Bronn, 1831)
Saint-Fons, Rhône	France	45.70910	4.85320	10.0000	Paleotestudo	Paleotestudo cf. antiqua	(Bronn, 1831)
Poc?e?ti right side Ikel River valley	Moldova	47.24500	28.67960	9.5000	Protestudo	Protestudo sp.	Chkhikvadze, 1970
Autovía Orbital de Barcelona B-40 (B40OV/S4K), Vallés-Penedés basin, Cataluña	Spain	41.53310	1.94260	10.3000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Autovía Orbital de Barcelona B-40 (B40OV/S4K), Vallés-Penedés basin, Cataluña	Spain	41.53310	1.94260	10.3000	Testudo	Testudo sp.	Linnaeus, 1758
Can Filuà, Santa Perpétua, Vallès Occidental, Barcelona	Spain	41.53330	2.18190	10.3000	Cheirogaster	Cheirogaster richardi	(Bergounioux, 1938)
Can Gavarra, Polinyá, Vallès Occidental, Barcelona	Spain	41.55710	2.15780	10.3000	Cheirogaster	Cheirogaster richardi	(Bergounioux, 1938)
Can Vinyalets, Barcelona	Spain	41.53320	2.18190	10.3000	Cheirogaster	Cheirogaster richardi	(Bergounioux, 1938)
Cerro de los Batallones, Madrid	Spain	40.17940	-3.72460	9.5000	Paleotestudo	Paleotestudo sp.	Lapparent de Broin, 2000
Cerro de los Batallones, Madrid	Spain	40.17940	-3.72460	9.5000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Djebel Krechem el Artsouma	Tunisia	35.50000	9.00000	10.3050	Geochelone	Geochelone sp.	Fitzinger, 1835
Love Bone Bed along State Road 241 near Archer, Alachua County, Florida	USA	29.60000	-82.50000	9.2500	Geochelone	Geochelone sp.	Fitzinger, 1835
Varnitza	Moldova	46.86410	29.46920	9.6000	Protestudo	Protestudo moldavica	Chkhikvadze & Lungu, 1979
Bushor 1	Moldova	46.92250	28.26830	9.7000	Protestudo	Protestudo csakvarensis	(Szalai, 1934)
Kalfa	Moldova	46.90420	29.37530	9.7000	Protestudo	Protestudo csakvarensis	(Szalai, 1934)
Borský Svätý Jur	Slovakia	48.24000	17.20000	9.6500	Protestudo	Protestudo csakvarensis	(Szalai, 1934)
Arevalillo River (Arévola), Ávila	Spain	40.59350	-5.37790	10.2500	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935

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Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Arévalo, Ávila, Castilla	Spain	41.06670	-4.72500	10.2500	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1917)
Benavente, Zamora	Spain	42.00340	-5.67840	10.5500	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
WaKeeney Local Fauna (UM-K6-59 on the Lowell Hillman Ranch), Trego County, Kansas	USA	39.10000	-99.80000	10.0000	Geochelone	Geochelone sp.	Fitzinger, 1835
WaKeeney Local Fauna (UM-K6-59 on the Lowell Hillman Ranch), Trego County, Kansas	USA	39.10000	-99.80000	10.0000	Hesperotestudo	Hesperotestudo orthopygia	(Cope, 1878)
Lapushna	Moldova	46.88420	28.41190	9.8000	Testudo	Testudo sp.	Linnaeus, 1758
Valles de Fuentidueña, Segovia Province	Spain	41.41670	-4.00000	10.4000	Cheirogaster	Cheirgaster sp.	Bergounioux, 1935
Valles de Fuentidueña, Segovia Province	Spain	41.41670	-4.00000	10.4000	Testudo	Testudo aff. catalaunica	(Bataller, 1926)
Valles de Fuentidueña, Segovia Province	Spain	41.41670	-4.00000	10.4000	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Estació Depuradora d'Aigües Residuals Sabadell Riu-Ripoll, Cataluña, Vallés-Penedés basin	Spain	41.55000	2.10000	10.5500	Cheirogaster	Cheirogaster richardi	(Bergounioux, 1938)
Hostalets de Piérola Superior, Barcelone province, Cataluña, Vallés-Penedés basin	Spain	41.53490	1.76850	10.5500	Titanochelon	Titanochelon bolivari	(Hernández Pacheco, 1971)
Rudabanya (grey green marl 5C)	Hungary	48.38330	20.63330	10.1000	Testudo	Testudo sp.	Linnaeus, 1758
Rudabánya, Borsod-Abaúj-Zemplén Province (all)	Hungary	48.38330	20.63330	10.1000	Testudo	Testudo sp.	Linnaeus, 1758
Hammerschmiede 3	Germany	47.92730	10.59150	11.1000	Testudo	Testudo sp.	Linnaeus, 1758
Prairéal, Vaumas, Allier	France	46.44600	3.63000	24.2500	gen.	gen. indet.	Gray, 1825
Langy, Allier	France	46.26730	3.46970	22.1000	Testudo	Testudo sp.	Linnaeus, 1758
Veauche, Loire	France	45.56230	4.27560	25.0000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Toulouse Puits Borderouge niveau inférieur, Haute-Garonne	France	43.60000	1.43330	23.1150	Ergilemys	Ergilemys bruneti	Broin, 1977
La Milloque, Hautefage, Lot-et-Garonne	France	44.32000	0.78000	23.5000	Ergilemys	Ergilemys bruneti	Broin, 1977
Oberleichtersbach	Germany	50.35000	10.05000	24.0000	Geochelone	Geochelone aff. sp.	Fitzinger, 1835
Oberleichtersbach	Germany	50.35000	10.05000	24.0000	Testudo	Testudo sp.	Linnaeus, 1758
Créchy, Allier	France	46.26670	3.41670	23.0650	Ergilemys	Ergilemys bruneti	Broin, 1977
Dieupentale, Tarn-et-Garonne	France	43.86190	1.26960	23.5150	gen.	gen. indet.	Gray, 1825
Moissac 2, Tarn-et-Garonne	France	44.10390	1.08500	23.4150	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Moissac 2, Tarn-et-Garonne	France	44.10390	1.08500	23.4150	gen.	gen. indet.	Gray, 1825
Peublanc, Sorbier, Allier	France	46.36630	3.63640	23.0300	gen.	gen. indet.	Gray, 1825
Venelles 35 km N Marseille	France	43.62000	5.48000	23.0650	gen.	gen. indet.	Gray, 1825
Hautesvignes, Lot-et-Garonne	France	44.45910	0.34440	23.3500	gen.	gen. indet.	Gray, 1825
Mine des Rois, Dallet et Pont-du-Château, Puy-de-Dôme	France	45.78420	3.25840	23.5000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Saint-Thomas, Hautefage, Lot-et-Garonne	France	44.35570	0.77130	23.5000	gen.	gen. indet.	Gray, 1825
Aktau Chul'adyr Formatioon Lower Member	Kazakhstan	44.06670	79.36670	26.1000	gen.	gen. indet.	Gray, 1825
Coderet, Bransat, Allier	France	46.30000	3.28330	24.0000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Gannat, Allier (shallow lake)	France	46.10000	3.20000	24.0000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Pech-Desse, Moulliac, Tarn-et-Garonne, Phosphorite du Quercy	France	44.40000	1.60000	24.3000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Pech-Desse, Moulliac, Tarn-et-Garonne, Phosphorite du Quercy	France	44.40000	1.60000	24.3000	gen.	gen. indet.	Gray, 1825
Paali Nala level 1, Balochistan	Pakistan	28.85000	69.21670	24.5000	gen.	gen. Indet.	Gray, 1825
Pech-du-Fraysse, Saint-Projet, Tarn-et-Garonne, Phosporites du Quercy	France	44.75000	2.66670	24.9000	Cheirogaster	Cheirogaster phosphoritarum	Bergounioux, 1935
Pech-du-Fraysse, Saint-Projet, Tarn-et-Garonne, Phosporites du Quercy	France	44.75000	2.66670	24.9000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972

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Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Pech-du-Fraysse, Saint-Projet, Tarn-et-Garonne, Phosporites du Quercy	France	44.75000	2.66670	24.9000	Testudo	Testudo sp.	Linnaeus, 1758
Paali Nala level C2, Balochistan	Pakistan	28.85000	69.21670	25.5000	gen.	gen. Indet.	Gray, 1825
Marseille, Saint-André, Bouches-du-Rhône	France	43.45000	5.45000	26.5000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Marseille, Saint-André, Bouches-du-Rhône	France	43.45000	5.45000	26.5000	gen.	gen. indet.	Gray, 1825
Le Crozatier, Brons, Cantal	France	45.04020	3.15070	28.0000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Le Crozatier, Brons, Cantal	France	45.04020	3.15070	28.0000	Testudo	Testudo sp.	Linnaeus, 1758
North Mesa, Shara Murun region, Inner Mongolia	China	43.00000	112.00000	31.0000	Testudo	Testudo ulanensis	Gilmore, 1931
Twin Oboes, Shara Murun region, Inner Mongolia	China	43.00000	112.00000	31.0000	Testudo	Testudo nanus	Gilmore, 1931
Ardyn Obo basin, Chinese Postroad	Mongolia	45.00000	110.00000	31.0000	Ergilemys	Ergilemys insolitus	(Matthew & Granger, 1923)
Ardyn Obo basin, Chinese Postroad	Mongolia	45.00000	110.00000	31.0000	Testudo	Testudo demissa	Gilmore, 1931
Ardyn Obo basin, Chinese Postroad	Mongolia	45.00000	110.00000	31.0000	Testudo	Testudo kaiseni	Gilmore, 1931
Promontory Bluff (Sair Usu 150- Kalgan 350 miles)	Mongolia	45.00000	110.00000	31.0000	Ergilemys	Ergilemys insolitus	(Matthew & Granger, 1923)
Le Garouillas, Phosphorites du Quercy	France	44.40000	1.60000	28.7500	Cheirogaster	Cheirogaster nov. sp.	-
Neschers à La Sauvetat, Puy-de-Dôme	France	45.59920	3.17100	28.8500	gen.	gen. indet.	Gray, 1825
Rigal-Jouet, Phosphorites du Quercy	France	44.40000	1.60000	28.7500	gen.	gen. indet.	Gray, 1825
Saint-Germain-Lembron, Puy-de-Dôme	France	45.45850	3.23870	28.8500	gen.	gen. indet.	Gray, 1825
Vaumas, Allier	France	46.44610	3.63030	28.8500	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Espenhain near Leipzig	Germany	51.18000	12.47000	30.2500	gen.	gen. indet	Gray, 1825
Bournoncle-Saint-Pierre, Auvergne, Haute-Loire	France	45.34870	3.32530	31.0000	Taraschelon	Taraschelon gigas	(Bravard, 1844)
Puylaurens, Tarn	France	43.57140	2.01380	29.5000	gen.	gen. indet.	Gray, 1825
Saint-Vivien-de-Monségur, Gironde	France	44.61570	0.17010	30.5000	gen.	gen. indet.	Gray, 1825
Talagay (Tayzhuzgen section)	Kazakhstan	47.59840	84.00000	30.2500	Ergilemys	Ergilemys saikenensis	(Chkhikvadze, 1972)
Los Barros quarry, 4 km SE Àvila	Spain	40.63080	-4.65870	31.0000	Cheirogaster	Cheirogaster ? sp.	Bergounioux, 1935
Pichovet, Vachères, Lubéron, Provence-Alpes-Côte d'Azur	France	43.90000	5.60000	29.7000	gen.	gen. indet.	Gray, 1825
Itardies (Caylus, Tarn-et-Garonne)	France	44.23330	1.78330	30.5000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Mounayne, Phosphorites du Quercy	France	44.40000	1.60000	30.5000	gen.	gen. indet.	Gray, 1825
Pech-Crabit, Bach, Lot, Phosphorites du Quercy	France	44.40000	1.60000	30.6000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Pech-Crabit, Bach, Lot, Phosphorites du Quercy	France	44.40000	1.60000	30.6000	gen.	gen. indet.	Gray, 1825
Roqueprune, Mouillac, Tarn-et-Garonne, Phosphorites du Quercy	France	44.61670	0.03330	30.5000	gen.	gen. indet.	Gray, 1825
La Plante 2, Concots, Lot, Phosporite du Quercy	France	44.40000	1.60000	31.8000	gen.	gen. indet.	Gray, 1825
Mas de Got A, Phosphorites du Quercy	France	44.40000	1.60000	31.8000	gen.	gen. indet.	Gray, 1825
Mas de Got B, Phosphorites du Quercy	France	44.40000	1.60000	31.8000	gen.	gen. indet.	Gray, 1825
AMNH quarries A, B, C, Fayyum	Egypt	29.50000	30.90000	32.6500	Gigantochersina	Gigantochersina ammon	Andres in Andrews & Beadnell, 1903
Gua Teg	Mongolia	43.50000	108.00000	32.6000	Ergilemys	Ergilemys insolitus	(Matthew & Granger, 1923)
Neumühle near Weinheim/Alzey	Germany	49.73610	8.06530	32.9500	gen.	gen. indet	Gray, 1825
Thaytiniti, Dhofar	Oman	17.00000	54.00000	32.5000	gen.	gen. Indet.	Gray, 1825
Ravet-Lupo, Caylus, Lot, Phosphorites du Quercy	France	44.40000	1.60000	33.2000	gen.	gen. indet.	Gray, 1825

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Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Ruch, Gironde	France	44.77550	-0.03920	33.1000	gen.	gen. indet.	Gray, 1825
Sainte-Marthe, Eymet, Dordogne	France	44.67850	0.39680	33.1000	gen.	gen. indet.	Gray, 1825
Soumaille, Pardaillan, Lot-et-Garonne	France	44.66710	0.25980	33.2500	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Aubrelong 1, Phosphorites du Quercy, Lot	France	44.40000	1.60000	33.5000	Cheirogaster	Cheirogaster cf. sp.	Bergounioux, 1935
Kalgan area	China	41.00000	115.00000	32.5000	Testudo	Testudo kalganensis	Gilmore, 1931
Quercy (Phosphorites du Quercy)	France	44.20000	1.50000	32.0000	Cheirogaster	Cheirogaster phosphoritarum	Bergounioux, 1935
Quercy (Phosphorites du Quercy)	France	44.20000	1.50000	32.0000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Baby 2, Saint-André-et-Appelles, Gironde	France	44.81200	0.21330	33.9500	Cheirogaster	Cheirogaster maurini	Bergounioux, 1935
Haunsberg near St. Pankraz, Salzburg	Austria	47.76560	14.20790	50.0000	Titanochelon	Titanochelon steinbacheri	Karl, 1996
Swift Current Creek, southern Saskatchewan	Canada	50.20000	-107.60000	44.5000	gen.	gen. indet.	Gray, 1826
Korablik Kiinkerish	Kazakhstan	48.00000	84.50000	34.2000	Ergilemys	Ergilemys sp.	Chkhikvadze, 1972
Ardyn Obo (Ergelyeen Dzo), SE Gobi	Mongolia	43.50000	109.00000	34.2000	Ergilemys	Ergilemys insolitus	(Matthew & Granger, 1923)
Saint-Capraise-d'Eymet, Dordogne	France	44.70870	0.50320	33.9500	gen.	gen. indet.	Gray, 1825
Sainte-Néboule, Béduer, Lot	France	44.58330	1.93330	35.5500	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Escamps, Phosphorites du Quercy	France	44.40000	1.58330	34.4000	gen.	gen. indet.	Gray, 1825
Lostange, Beduer, Lot	France	44.58110	1.94840	34.4000	Dithyrosternon	Dithyrosternon sp.	Pictet & Humbert, 1869
Lostange, Beduer, Lot	France	44.58110	1.94840	34.4000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Rosières, Escamps, Lot, Phosporites du Quercy	France	44.40000	1.60000	34.4000	gen.	gen. indet.	Gray, 1825
Sainte-Croix-de-Brignon, Gard	France	43.98890	4.21660	35.0000	Ergilemys	Ergilemys aff. sp.	Ckhikvadze, 1972
Sindou D, Phosphorites du Quercy	France	44.40000	1.60000	35.0000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Côja, Cerâmica da Carriça	Portugal	40.27010	-7.97810	35.5000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Paris Montmartre	France	48.86670	2.33330	35.2000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
La Débruge = Butte de Sainte Radegonde (pres d'Apt, Gargas, Vaucluse)	France	43.90000	5.38330	35.5000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
La Grave, Bonsac, Gironde	France	45.01130	-0.22510	35.5000	Cheirogaster	Cheirogaster sp.	Bergounioux, 1935
Langlès, Saint-Martin-de-Villeréal, Lot-et-Garonne	France	44.64470	0.82040	35.5000	gen.	gen. indet.	Gray, 1825
Santiago Yolomécatl, Oaxaca	Mexico	17.47000	-97.56000	36.5000	Hadrianus	Hadrianus aff. sp.	Cope, 1872
Santiago Yolomécatl, Oaxaca	Mexico	17.47000	-97.56000	36.5000	Stylemys	Stylemys sp.	Leidy, 1851
Calf Creek near Eastend, Saskatchewan	Canada	49.00000	-109.00000	36.9000	gen.	gen. indet.	Gray, 1825
Rocourt-Saint-Martin, Aisne	France	49.15000	3.38330	38.5000	gen.	gen. indet.	Gray, 1825
Rocourt-Saint-Martin, Aisne	France	49.15000	3.38330	38.5000	Hadrianus	Hadrianus sp.	Cope, 1872
Myaing UCMP locality V6204	Myanmar	21.60000	94.80000	38.5000	gen.	gen. Indet.	Gray, 1825
Thandaung kyitchaung, UCMP locality V78090	Myanmar	21.92000	94.56000	38.5000	gen.	gen. Indet.	Gray, 1825
Chéry-Chartreuve (Aisne)	France	49.26670	3.61670	37.7000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
Grisolles, Est du Basin de Paris, Aisne	France	49.15000	3.35000	37.7000	gen.	gen. indet.	Gray, 1825
Castres, Bassin de l'Agout, Tarn	France	43.60520	2.24090	39.0000	Hadrianus	Hadrianus castrensis	(Bergounioux, 1935)
Lautrec, Tarn	France	43.70560	2.13590	39.0000	Hadrianus	Hadrianus sp.	Cope, 1872
Robiac, Saint-Mamert, Gard	France	44.26670	4.13330	39.0000	gen.	gen. indet.	Gray, 1825

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Locality	Country	Latitude	Longitude	Age	Genus	Taxon	Author
Robiac, Saint-Mamert, Gard	France	44.26670	4.13330	39.0000	Hadrianus	Hadrianus sp.	Cope, 1872
Naia, Tondela, Viseu	Portugal	40.57480	-8.03980	38.5000	Cheirogaster	Cheirogaster ? sp.	Bergounioux, 1935
Mazaterón, Soria Province, Castilla y León	Spain	41.50000	-2.10000	39.5000	Pelorochelon	Pelorochelon soriana	Pérez-García, Ortega & Jiménez Fuentes, 2016
Geiseltal near Halle (Mücheln), Sachsen-Anhalt	Germany	51.33390	11.83180	44.5000	Pelorochelon	Pelorochelon eocaenica	(Hummel, 1935)
Issel, Department Aude	France	43.46670	1.98330	42.4000	Hadrianus	Hadrianus sp.	Cope, 1872
Le Guépelle, Saint-Witz, Val d'Oise	France	49.08420	2.53550	42.5000	Ergilemys	Ergilemys sp.	Ckhikvadze, 1972
La Défense, Hauts-de-Seine	France	48.90000	2.23330	43.6000	Hadrianus	Hadrianus sp.	Cope, 1872
Aigues-Vives 2, Hérault	France	43.33750	2.81790	43.5000	Hadrianus	Hadrianus sp.	Cope, 1872
Jumencourt, Aisne	France	49.50860	3.35630	43.5000	Hadrianus	Hadrianus sp.	Cope, 1872
Bouxwiller, Bas-Rhin	France	48.81670	7.48330	45.0000	Hadrianus	Hadrianus sp.	Cope, 1872
Stena	Kazakhstan	47.50000	84.80000	48.0000	Hadrianus	Hadrianus obailiensis	Chkhikvadze, 1972
Saint-Papoul NE Carcasonne, Aude	France	43.33330	2.03330	52.2000	Fontainechelon	Fontainechelon cassouleti	(Claude & Tong, 2004)
North Fork, Wapiti Valley north Shoshone River (NF-5 Wapiti III), Park County, Wyoming	USA	44.30000	-109.00000	49.4500	Hadrianus	Hadrianus sp.	Cope, 1872
UCMP V98009, Uinta County, Wyoming	USA	41.00000	-110.00000	49.4000	Hadrianus	Hadrianus corsoni	(Leidy, 1871)
Cuis (Marne)	France	49.00000	3.96670	49.5000	Hadrianus	Hadrianus sp.	Cope, 1872
Grauves (Marne)	France	48.96670	3.96670	49.5000	Hadrianus	Hadrianus sp.	Cope, 1872
Mancy, Marne	France	48.98370	3.93510	49.5000	Hadrianus	Hadrianus sp.	Cope, 1872
Monthelon, Marne	France	48.98330	3.93330	49.5000	Hadrianus	Hadrianus sp.	Cope, 1872
Andarak 1, Osh Region	Kyrgyzstan	39.74990	69.49160	52.0000	Hadrianus	Hadrianus vialovi	(Chkhikvadze, 1984)
Andarak 2, Osh Region	Kyrgyzstan	39.79000	69.49000	50.5000	Hadrianus	Hadrianus vialovi	(Chkhikvadze, 1984)
Khayzhin-Ula 2	Mongolia	44.20000	100.00000	52.0000	Kansuchelys	Kansuchelys sp.	Ye, 1963
North Fork, Wapiti Valley north Shoshone River (NF-16 Wapiti II), Park County, Wyoming	USA	44.30000	-109.00000	52.8500	Hadrianus	Hadrianus sp.	Cope, 1872
North Fork, Wapiti Valley north Shoshone River (NF-17 Wapiti II), Park County, Wyoming	USA	44.30000	-109.00000	52.8500	Hadrianus	Hadrianus sp.	Cope, 1872
North Fork, Wapiti Valley north Shoshone River (NF-3 Wapiti II), Park County, Wyoming	USA	44.30000	-109.00000	52.8500	Hadrianus	Hadrianus sp.	Cope, 1872
North Fork, Wapiti Valley north Shoshone River (NF-8 Wapiti II), Park County, Wyoming	USA	44.30000	-109.00000	52.8500	Hadrianus	Hadrianus sp.	Cope, 1872
UCMP V70251, Patrick Draw S, Sweetwater County, Wyoming	USA	41.70000	-109.00000	52.9000	Hadrianus	Hadrianus majusculus	Hay, 1904
UCMP V70251, Patrick Draw S, Sweetwater County, Wyoming	USA	41.70000	-109.00000	52.9000	Hadrianus	Hadrianus sp.	Cope, 1872
UCMP V74024, Turtle Graveyard General, Sweetwater County, Wyoming	USA	41.00000	-108.00000	52.9000	Hadrianus	Hadrianus majusculus	Hay, 1904
Tsagan-Khushu (Naran member, layer 2)	Mongolia	43.45500	100.37000	56.1100	gen.	gen. Indet.	Gray, 1825
Kaseki-Kabe near Shiramine, Kuwajima, Hakusan City, Ishikawa Prefecture, Honshu	Japan	36.20000	136.63300	122.0000	gen.	gen. indet.	Gray, 1825
Cedazo local fauna, Aguascalientes, Mexico	Mexico	21.82401	-102.36874	1.0500	Gopherus	Gopherus pargensis	Mooser, 1980

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