# Body size trends in fossil tortoises

## paleoTS Plot with the following bins (for fossil taxa):

- after including extant species, another bin is added: Modern, t=0
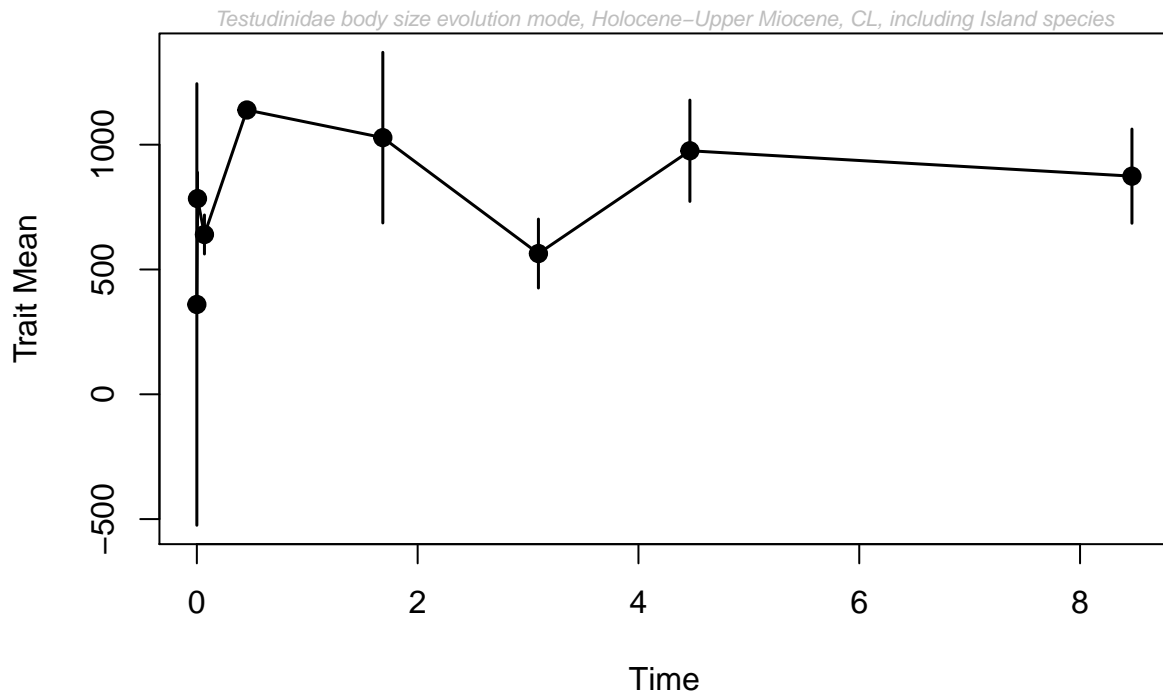
| bin | n |
|---|---|
| (0,1e-06] | 104 |
| (1e-06,0.0117] | 10 |
| (0.0117,0.126] | 9 |
| (0.126,0.781] | 2 |
| (0.781,2.59] | 8 |
| (2.59,3.6] | 13 |
| (3.6,5.33] | 14 |
| (5.33,11.6] | 16 |

| bin | EpochBins | MeanBins |
|---|---|---|
| (0,1e-06] | Modern | 0.0000005 |
| (1e-06,0.0117] | Holocene | 0.0058500 |
| (0.0117,0.126] | Upper Pleistocene | 0.0688500 |
| (0.126,0.781] | Middle Pleistocene | 0.4535000 |
| (0.781,2.59] | Lower Pleistocene | 1.6845000 |
| (2.59,3.6] | Upper Pliocene | 3.0940000 |
| (3.6,5.33] | Lower Pliocene | 4.4660000 |
| (5.33,11.6] | Upper Miocene | 8.4700000 |

## including Island species (n=957)

paleoTS object (mm= mean CL, nn = sample size, vv = variance (CL), tt = Age):

| mm | nn | vv | tt |
|---|---|---|---|
| 359.8761 | 890 | 696253561.62 | 0.0000005 |
| 784.0000 | 9 | 99232.00 | 0.0058500 |
| 640.1956 | 9 | 54949.13 | 0.0688500 |
| 1139.0000 | 1 | 0.00 | 0.4535000 |
| 1028.1833 | 6 | 700699.16 | 1.6845000 |
| 563.8583 | 12 | 228833.55 | 3.0940000 |
| 975.6429 | 14 | 576600.86 | 4.4660000 |
| 873.9312 | 16 | 569550.77 | 8.4700000 |

*Testudinidae body size evolution mode, Holocene–Upper Miocene, CL, including Island species*
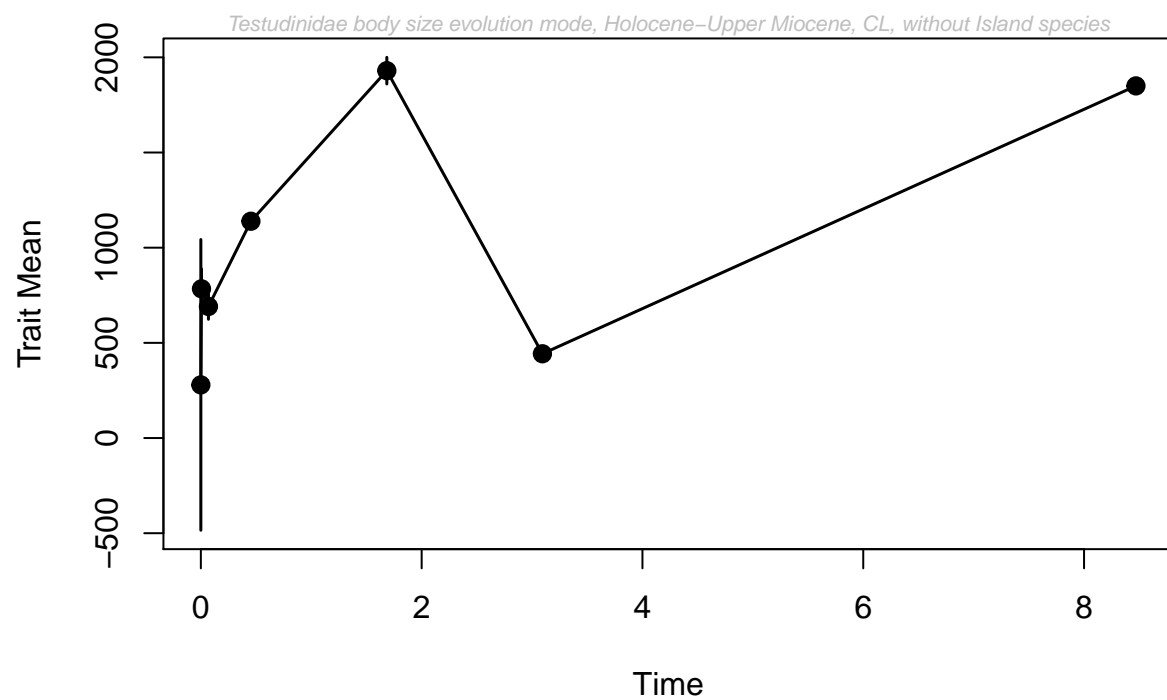
```
##
## Comparing 3 models [n = 7, method = AD]
##
##             logL K    AICc Akaike.wt
## GRW    -55.81092 2 118.6218         0
## URW    -60.74586 1 124.2917         0
## Stasis -47.81894 2 102.6379         1
```

|        | logL      | K | AICc     | Akaike.wt |
|--------|-----------|---|----------|-----------|
| GRW    | -55.81092 | 2 | 118.6218 | 0         |
| URW    | -60.74586 | 1 | 124.2917 | 0         |
| Stasis | -47.81894 | 2 | 102.6379 | 1         |

## Excluding Island species (n= 719)

| mm        | nn  | vv           | tt        |
|-----------|-----|--------------|-----------|
| 279.2598  | 694 | 4.046707e+08 | 0.0000005 |
| 784.0000  | 9   | 9.923200e+04 | 0.0058500 |
| 691.1250  | 8   | 3.611984e+04 | 0.0688500 |
| 1139.0000 | 1   | 0.000000e+00 | 0.4535000 |
| 1930.0000 | 2   | 9.800000e+03 | 1.6845000 |
| 442.7500  | 4   | 4.049167e+02 | 3.0940000 |
| 1850.0000 | 1   | 0.000000e+00 | 8.4700000 |

*Testudinidae body size evolution mode, Holocene–Upper Miocene, CL, without Island species*
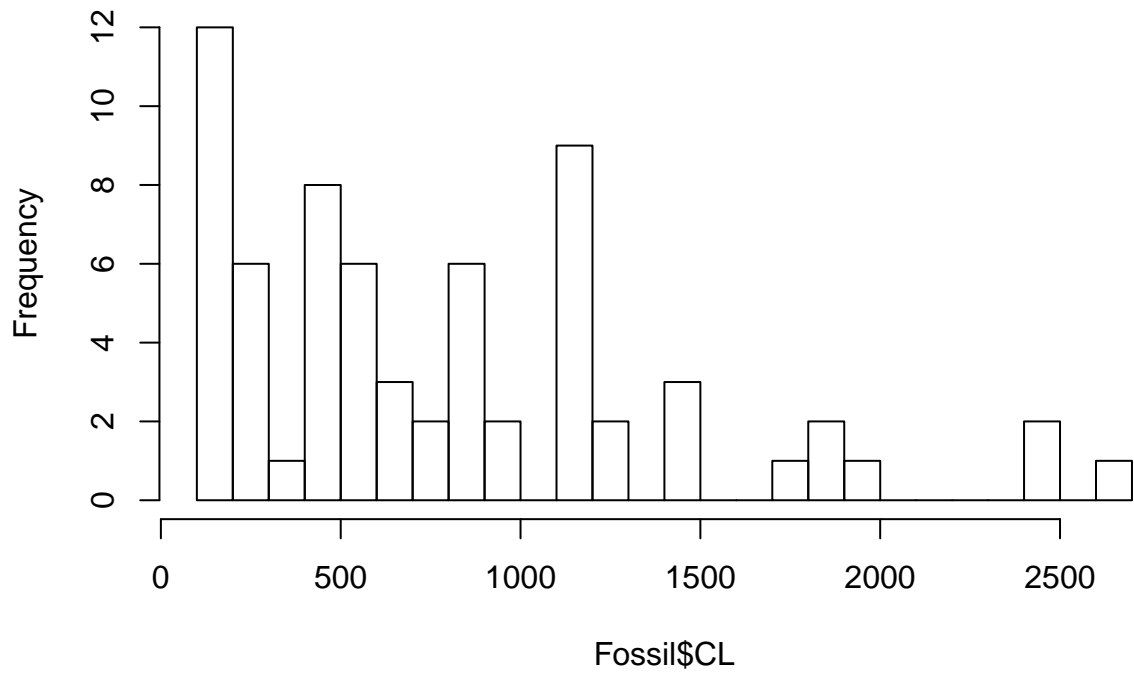
```
##
## Comparing 3 models [n = 6, method = AD]
##
##            logL K    AICc Akaike.wt
## GRW    -54.40213 2 116.8043     0.008
## URW    -68.44592 1 139.8918     0.000
## Stasis -49.61560 2 107.2312     0.992
```

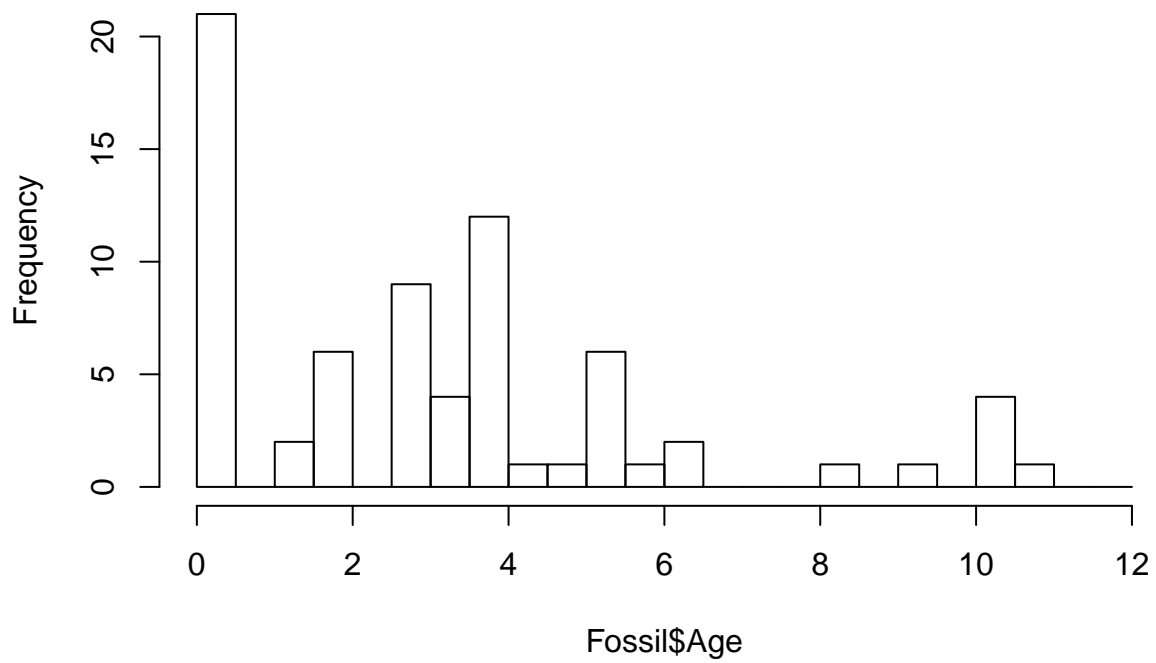|        | logL       | K | AICc     | Akaike.wt |
|--------|-----------|---|----------|-----------|
| GRW    | -54.40213 | 2 | 116.8043 | 0.008     |
| URW    | -68.44592 | 1 | 139.8918 | 0.000     |
| Stasis | -49.61560 | 2 | 107.2312 | 0.992     |

## Histograms

Frequency of body size data and distribution over time

3

# Histogram of Fossil$CL



# Histogram of Fossil$Age

# Boxplots (continental (n) vs. Island (y) species)