WEIGHT ESTIMATIONS

Various attempts are possible, in particular those based on the surface of the upper M1, and on some distal metapodial dimensions. No kind of estimation is really good because species do differ by the relations between their anatomical parts and their weight. This is especially true for estimations based on the occlusal surface of teeth: the weight of a macrodont animal like a Horse will be overestimated if computed in the same way as the weight of a microdont one like the Grevy's zebra. Moreover, if the equation corresponding to M1 is used for M2, the weight will appear bigger because M2 are in average larger than M1. Since the distinction between isolated M1 and M2 is not always easy, this caveat must be kept in mind.

Estimations based on two distal dimensions of the metapodials (width and depth) are more reliable (use the computation table). All the equations proposed below are, however, only approximations!

Ln of the weight = -6.388 + 1.873 (Ln surface M1).

Ln of the weight = -4.525 + 1.434 (Ln of the product of MC supra-articular width (MC10) by the minimal depth of the medial condyle (MC13)).

Ln Weight = -4.585 + 1.443 (Ln (MT10\*MT13))

For the three species of extant Zebras, regressions are:

Plains zebras : Weight = 0.302 (MC10\*MC13) - 100.5

Plains zebras : Weight = 0.548 (surface M1) - 29.3

Hartmann'zebras : Weight = 0.254 (MC10\*MC13) + 12.8

Hartmann'zebras : Weight = 0.251 (surface M1) + 154.3

Grevy's zebras : Weight = 0.287 (MC10\*MC13) + 26.9.

Grevy's zebras : Weight = 0.361 (surface M1) + 166.6.

See more in:

- Alberdi M.T., Prado J.L., Ortiz-Jaureguizar E., 1995. - Patterns of body size changes in fossil and living Equini (Perissodactyla). Biological Journal of the Linnean Society, 54: 349-370, 5 fig.

- Eisenmann & Sondaar 1998