Simpson’s ratio diagrams (Simpson 1941, Large Pleistocene felines of North America. American Museum Novitates, 1136, p.1-27, 11 fig., New York) provide rapid and easy comparisons, both of size and shape, for a single bone or a group of bones.
- The reference is provided by a single bone (or a group of bones), or means of a bone sample, the dimensions of which are converted into decimal logarithms. By convention, logarithms of these dimensions are placed on the "0" line of the graph. In most cases I used an extant equid, *E. hemionus onager*, as reference.
- Dimensions of the material under study are also converted into decimal logarithms.
- Arithmetic differences between the reference logarithms and the logarithms of the studied dimensions are placed above the "0" line if they are positive (larger dimensions), or below if they are negative (smaller dimensions).

In such a logarithmic diagram, proportions remain unchanged whatever the absolute dimensions: diagrams of two bones differing by their size but identical by their proportions will appear one above the other but on parallel lines.

The diagram interpretation is easier when couples of dimensions describing main proportions are placed side by side. For instance, "gracile-robust" proportions appear immediately when "widths" are placed beside "lengths". It may also be convenient to group the dimensions of anatomical parts (diaphysis, proximal end, distal end). When data are often missing for some dimensions (for example when a particular part of the bone is often badly preserved), I recommend placing them at the beginning or at the end of the diagram.

Examples

Given its small size the cranium from Longueuil Sainte-Marie could have been identified as the carnium of a Donkey. Simpson’ Ratio Diagrams showed, however, that it belonged to a small Horse.

Relative lengths of limb bones segments give good indications on the more or less cursorial abilities of species: in cursorial animals the proximal segments (Humerus, Femur) are short relative to distal ones (MC III and MT III). Relative widths of third phalanges give indications on the more or less hard ground: when the ground is soft, the third phalanges are wider.

The Simpson’ Ratio Diagrams shows that *E. przewalskii* is the most cursorial and moved on a hardest ground. It is wrong to assimilate the Upper Pleistocene *E. gallicus* to *E. przewalskii*.