

In **Google Earth**, *Open* the csv file, and in the "Data import wizard" (the window may be quite broad) select :

Choose *Field type* "Delimited"

Select *Delimiter* "Other" and type ";" (semicolon)

**Untick** "Treat consecutive delimiters as one" and click *Finish*

Click "Import all" (ignore the message saying that more than 2500 features will cause performance degradation), To *Do you want to apply a style template to the features you ingested ?* tick *Yes* and *Create new template*

Then, in *Style template settings*, in *Name*, select field 'name' to display the name of the site. You can choose to display by color or icon style (*Set color from field* or *Set icon from field*) the sites that contain any rhino genus, by choosing the relevant column (from column "Aceratherium" to column "Victoriaceros"). Click OK, and save the template if you wish so.

To display the points, do not forget to tick the name of the file in window "Places"

Display options are far richer in GIS programs, e.g. the free program **QGIS** (<https://qgis.org> - tested in version 3.10 ) :

Upon a map of the Old World choose :

*Layer*

*Add layer*

*Add delimited text layer*

Enter file name (e.g., "fossil\_rhinoDB.csv"), select "*Custom delimiters*" and tick "Semicolon", "First record has field names", "Detect field types", "Point coordinates", leave (default) X field "lon", Y field "lat", and leave default for Geometry CRS ("EPSG 4326 – WGS 84" for a lat/lon map), click "Add" – all points will be displayed

### ***To display the distribution of one or more taxa:***

If you want to display the distribution of particular taxa, or of larger groups (see below for details on the groups), the simplest way is to duplicate (right-click) the "fossil\_rhinoDB.csv" layer several times (you need as many layers as genera you want to display), then rename them. Let's rename one "Chilotherium". Right-click on it and choose *Properties*, then *Symbology*. At the top of the window, instead of "Single symbol", choose "Categorized". For *Value* choose "123 Chilotherium" (this is the column with the number of species of *Chilotherium* in each site) and click (bottom left) *Classify*. Untick the lines for *Value* "0" and "all others". You can then change the symbols for other lines (with 1, 2, or 3 species of *Chilotherium*) by double-clicking them.

### ***To display the distribution for one or more particular period only:***

In the folder containing your data, create a new folder, e.g., "stratigraphy"

in menu *Vector*

*Data management tools*

*Split vector layer*

in *Parameters*, enter the name of the point layer (e.g., "fossil\_rhinoDB") and, in *Unique ID field*, enter the name of the column containing the ages, "Age", and in *Output directory*, choose "Save to Directory", and select the (name of the) folder that you just created, "stratigraphy", and click *Run*

This will create a series of point layers in folder "Stratigraphy"

To display them:

*Layer*

*Add layer*

*Add vector layer*

In *Source*, select any (or several) file(s) with extension .gpkg in folder "Stratigraphy", and click "Add"; the various periods will be displayed with different colors.

We can now choose to hide/display any layer, including the complete fossil\_rhinoDB layer.

Suppose we want to display the late Miocene distribution of *Aceratherium*, *Dihoplus*, and *Chilotherium*. Untick all other layers except "Stratigraphy\_Late Miocene". Right-click layer *Age\_Late Miocene*, and choose *Duplicate layer* twice (as above, you need as many layers as genera you want to display). Rename (right click) the three layers "Late Miocene *Aceratherium*", "Late Miocene *Dihoplus*", and "Late Miocene *Chilotherium*". Right-click "Late Miocene *Chilotherium*", *Properties*, then *Symbology*. At the top of the window, instead of "Single symbol", choose "Categorized". For *Value* choose "123 *Chilotherium*" (this is the column with the number of species of *Chilotherium* in each site) and click (bottom left) *Classify*. Untick the lines for *Value* "0" and "all others". You can then change the symbols for other lines (with 1, 2, or 3 species of *Chilotherium*) by double-clicking them. It is certainly clearer to use the same symbol and color for all *Chilotherium*, and change only the size of the symbol (e.g., 1, 2, 3 map units). Repeat the operation for *Dihoplus* and *Aceratherium*.

You can also choose to display the Aceratheriini (*Aceratherium* + *Acerorhinus* + *Alicornops* + *Chilotherium* + *Hoploaceratherium* + *Mesaceratherium* + *Plesiaceratherium* + *Protaceratherium* + *Shansirhinus* + *Pleuroceros* + *Subchilotherium*), the Rhinocerotini (*Diceros* + *Ceratherium* + *Dicerorhinus* + *Rhinoceros* + *Stephanorhinus* + *Coelodonta* + *Paradiceros* + *Rusingaceros* + *Lartetotherium* + *Dihoplus* + *Gaiotherium*), the brachypotheres (*Brachypotherium* + *Prosantorhinus* + *Diaceratherium*), the Rhinocerotini + brachypotheres, the Rhinocerotinae (Aceratheriini + Rhinocerotini + brachypotheres), the Elasmotheriinae (*Begertherium* + *Beliajevina* + *Bugtirhinus* + *Caementodon* + *Elasmotherium* + *Hispanotherium* + *Huaqingtherium* + *Iranotherium* + *Kenyatherium* + *Ningxiatherium* + *Ougandatherium* + *Parelasmotherium* + *Shennongtherium* + *Sinootherium* + *Tesselodon* + *Turkanatherium* + *Chilotheridium* + *Victoriaceros*), or the stem taxa (all others) (*of course not everyone will agree on these subdivisions !*).